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FDI and Development Redux: Is R&D a substitute for FDIs?

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Abstract

Using a sample of 130 countries over the period 2004-2019, we revisit the development impact of foreign direct investment (FDI), but this time examine the role of research and development (R&D) in this framework. We use bilateral investment treaties (BITs) as a novel instrument for FDI. We find that compared to FDI, expenditure on R&D has a more pronounced impact on development outcomes – through increasing growth and human development while reducing poverty and inequality. We also find that countries that spend more on R&D are less dependent on FDI for development. Thus, R&D and FDI are substitutes in the development process with the results showing varying FDI and R&D thresholds at which the substitution takes place. We however find the vanishing effect of FDI on development. It turns out that R&D complements FDI only when FDI reaches its threshold and begins to hurt development – at this stage there is sufficient R&D expenditure which possibly suggest sufficient adaptive capacity.

Keywords: FDI; R&D; Economic growth; Poverty; Income inequality

JEL Codes: F43; O40

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1 Introduction

The development impact of private capital flows, particularly, foreign direct investment (FDI), has largely been espoused in the literature. Consequently, the benefit of FDI has been on: improving growth (Alfaro et al., 2004, 2010; Kang and Martinez-Vazquez, 2022; Li and Lui, 2005); reducing poverty (Do et al., 2021; Magombeyi and Odhiambo, 2018); improving welfare or human development (Soumare, 2015; Gohou and Soumare, 2012); enhancing technological spillovers (Alvarez and Molero, 2005; Aitken and Harrison, 1999) among other outcomes (Chowdhury and Mavrotas, 2005). Hence, policy discussions have largely focused on the need for countries to fashion out domestic policies that are favourable to attract more foreign investors. Among other channels, the development impact of FDI has largely been explained through technological transfer (Aitken and Harrison, 1999). The traditional thinking has been that foreign firms that decide to invest in other countries have advance technology and hence are able to transfer same to host countries. This has been confirmed by notable studies such as Aitken and Harrison (1999) and Alvarez and Molero (2005). However, studies like those of Globerman and Meredith (1984) and Fan and Hu (2007) are skeptical of the technological spillovers of FDIs. The argument is that most foreign firms already have access to the technology of the parent company hence have little to no incentive to invest in research or new technology in the host country (Beers, 2004; Kathuria, 2008). This is because these private multinationals are profit-oriented hence their interests may not necessarily align with the social interest of the host country (Lall and Urata, 2003). Moreover, not all technologies are transferrable given the idiosyncratic differences and needs of countries (Acemoglu, 2002; Atkinson and Stiglitz, 1969; Basu and Weil, 1998). Fu et al. (2011) even suggest restricting foreign firms in certain sectors of the host country to protect local firms that innovate in those sectors, given that the interest of foreign firms do not always accrue to the benefit of the host country.

The question therefore is whether host/destination countries themselves should focus on domestically promoting innovation through higher research & development (R&D) expenditures or to depend on the possibility of technology spillover from FDI. It is needful to say that this question has received attention in literature albeit assessed from different angles. The literature has generally focused on whether FDI and local R&D are substitutes or com-

plements in promoting domestic innovation or technological progress rather than on development outcomes like economic growth, inequality, poverty, and human development. One strand of literature shows that FDI and R&D are complements (Fu et al., 2011; Hu et al., 2005; Sasidharan and Kathuria, 2011). Fu et al. (2011) for instance argued for the presence of a parallel indigenous innovation effort by host countries among other favourable institutional framework to be able to benefit from international technology diffusion. Sasidharan and Kathuria (2011) also documented that FDI and R&D are complements in a study of Indian manufacturing firms but this complementary relationship is only seen when the sample of firms are divided based on equity ownership – thus, FDI and R&D are complements for foreign-owned firms. Hu et al. (2005) on the other hand examined whether FDI and R&D are substitutes in their relationship with productivity for Chinese firms. Even though the study showed no role of FDI in facilitating the transfer of market-mediated technology, the study demonstrated that FDI and R&D are complements in promoting technology.

The other strand of literature argues that FDIs and R&D are substitutes (Chuang and Lin, 1999; Fan and Hu, 2007; Kathuria, 2008; Kathuria and Das, 2005; Kumar, 1987; Veugelers and van den Houte, 1990). These studies have largely focused on the impact of FDI on R&D or vice versa. Kumar (1987) for instance using FDI as a measure of technology imports found a negative impact of FDI on local R&D intensity suggesting a substitution effect between FDI and local R&D intensity. Kathuria and Das (2005) also examined the impact of FDI on R&D and found that FDI and R&D are substitutes. More recently, Fan and Hu (2007) in the Chinese context examined how efforts in promoting indigenous technology (R&D) are influenced by FDI. The study found that FDI and R&D are substitutes showing that expenditure of firms on R&D reduces with the amount of FDI received.

In summary therefore, evidence on the relationship between FDI and R&D remains mixed with the literature though scarce largely focusing on the relationship between FDI and R&D or whether FDI reduces the technological innovation of domestic firms with other studies looking at whether technological change/productivity is driven by either or both FDI and R&D. Barring these earlier studies, surprisingly, the literature is lacking on whether FDI and R&D are substitutes or complements in their relationship with development outcomes like economic growth, poverty, inequality, and human development at the macro level.

We postulate that, countries that comparatively spend more on R&D will be less dependent on FDI for development. As we see in Figure 1, countries that have larger share of world net FDI inflows are less dependent on FDI when FDI is taken as a share of the country's GDP (see Figure 2). Interestingly, when we observe R&D in Figures 3 and 4, comparing with Figures 1 and 2, countries that are less dependent on FDIs – as seen earlier – spend more on R&D when R&D is considered both as a share of world expenditure on R&D and as a share of the respective country's GDP. We postulate that these countries would tend to have more home-grown solutions for their development and not be over-reliant on FDI, particularly given the recent concerns of the vanishing/threshold effect of FDI where over-reliance on net FDI inflows may turn to hurt the host economy.

[Insert Figures 1, 2, 3 and 4 Here]

Our argument is based on the appropriate technology concept, which is the technology that is well-suited for a particular country and period in terms of both psychosocial and biophysical contexts (Stewart, 1983; Willoughby, 1990). Hence, we conjecture that a more "localized learning by doing" (Atkinson and Stiglitz, 1969) approach will be more beneficial for development than would FDIs. As we argued earlier, multinational corporations (MNCs) are profit-oriented and hence may not necessarily be development-oriented in their investment approach even though FDIs may contribute to development. Given these compelling points and the quandary of the twin-effect of these two important variables in the development process, this study is necessary to fill this research gap.

We make two important contributions to the literature. First, to the best of our knowledge, this is the first study to provide evidence of the combined effect of FDI and R&D on development. Hence, we provide a comprehensive analysis using several development indicators including economic growth/development, inequality, headcount poverty ($1.9, $3.20, and $5.50), multidimensional poverty (Md. poverty), human development index (HDI), inequality-adjusted HDI (iHDI) and inequality (Gini) to provide empirically robust justification for our arguments. Second, methodologically, we estimate the causal relationship between FDI and development by using the number of bilateral investment treaties (BITs) as a novel instrument for FDIs to address any possible endogeneity of FDI. Most of the pre-

vious studies discussed earlier have tended to use the ordinary least squares (OLS) and fixed effects (FE) in their estimations. We rely on BITs as an external instrument for FDIs in a two-stage least squares (2SLS) framework as well as provide additional robust results using the two-step system-generalized method of moments (GMM) technique.

Our results show that even though FDI and R&D directly enhance development, the development impact of R&D expenditure is more pronounced than FDIs. We however find that the impact of FDI is non-linear with a threshold after which FDI begins to hurt development. We find that FDI and R&D are both substitutes and complements depending on the level of net FDI inflows. Specifically, they are substitutes when FDIs are below its threshold but complementary when FDI begins to hurt development. Hence, R&D mitigate the negative impact of FDI on development after FDI reaches its threshold. This has important policy implication for countries to invest in R&D especially in anticipation of when the development impact of FDIs reaches its threshold.

The remainder of the study is structured as follows: section 2 provides a description of the data and the empirical methods used in analyzing the data, section 3 presents and discusses the results, section 4 concludes the study and discusses the policy implications of the findings.

2 Data and Empirical Methodology

2.1 Data

We use an unbalanced panel data of a total of 130 countries[1] spanning the period of 2004 to 2019 is collected from the World Development Indicators of the World Bank and the United Nations Development Programme (UNDP). The choice of sample period is based on the availability of sufficient data covering most of the development indicators and our main covariates (i.e. FDI and R&D).

[1] The sample size may differ depending on the specification, especially on the availability of data for the development indicators. A list of the countries are provided in Appendix.

2.2 Model specification

The study examines the impact of FDI and R&D on development outcomes following the the basic econometric model below:

$$DEV_{i,t} = \alpha_0 + \alpha_1 FDI_{i,t} + \alpha_2 R\&D_{i,t} + \boldsymbol{\gamma}\,\boldsymbol{Controls}_{i,t} + \varepsilon_{i,t} \tag{1}$$

where *i,t* represents country *i* at time *t*; *DEV* denotes the development outcome variables which are natural log of real GDP per capita, Gini coefficient as a measure of inequality, four poverty measures – poverty headcount ratio at $1.90, $3.20, $5.50 per day (2011 purchasing power parity (PPP)), as a percentage of population and multidimensional headcount poverty ratio as a percentage of total population[2] and human development index (HDI) and inequality-adjusted HDI (iHDI). Each development variable is estimated in separate regressions. *FDI* is the net foreign direct investment inflows as a percentage of GDP. To be more specific, FDI is the equity flows into a country that are direct investments which includes equity capital, reinvestment of earnings, and other capital. A direct investment is indicated to happen when the investor owns 10% or more of the ordinary shares of voting stock. *R&D* is the research and development expenditure as a percentage of GDP. The knowledge economy is seen to be key in driving both economic and human development (Chen and Dahlman, 2006). R&D as a key pillar of the knowledge economy is important in the development process of every country (Chen and Dahlman, 2006). As discussed earlier, we expect a positive impact of R&D on economic and human development as well as a negative impact of R&D on poverty and inequality. ***Controls*** is a vector of control variables identified in literature (i.e. information and communication technologies (ICT) infrastructure, education, unemployment, financial development and inflation); $\varepsilon_{i,t}$ is the idiosyncratic error term. As a benchmark exercise we first estimate Equation (1) using the fixed effects technique. Below we discuss the control variables.

As a measure of ICT infrastructure, we use the mobile cellular and telephone subscription per 100 people following the literature (Asongu et al., 2017; Asongu et al., 2018). ICT in-

[2]The measure of multidimensional poverty is limited in its interpretation given the possible differences in cross-country measurements. We however add this measure as a form of robustness. Our results remain consistent with the other measures of headcount poverty.

frastructure is also a key pillar in the knowledge economy. Niebel (2018) found growth to be driven by ICT. ICT can promote development directly and indirectly by providing tools needed for the improvement in: access to health care, financial inclusion, business processes among others (Kirui et al. 2013; Kliner et al. 2013; Mishra and Bisht, 2013). Asongu et al. (2017) for instance found that ICT enhances human development in Sub-Saharan Africa. The World Bank (2012) indicated the key role of ICT in the reduction of poverty, improvement in productivity and the boosting of economic growth. These show that ICT diffusion can provide the tools needed to drive the development process. This can be attained as businesses and farms adopt modern ways of doing business and farming, which can serve as an equalizer as farmers and businesses particularly in rural areas can have access to relevant and modern information concerning their processes. The poor or marginalized can equally be financially included through the use of mobile money technology. People can also have access to doctors by phone. Hence, ICT can promote pro-poor development where the inequality gap can be bridged. We therefore expect a positive impact of ICT on economic and human development while expecting a negative impact of ICT on poverty and inequality.

We measure *education* using both secondary school enrolment (% of gross) and tertiary school enrolment (% of gross). As a key pillar of the knowledge economy, education has been found to help increase economic growth and development (Gyimah-Brempong et al., 2006), as well as reduce poverty and inequality (Appleton et al., 2010). The returns to education has been that the higher people go on the education ladder, the better their human capital skills and knowledge, generating the needed productivity to drive growth and development. Higher education can help lift people out of poverty as they are more likely to be employed to earn income. Hence, we include both secondary and tertiary enrolment ratios to estimate the the returns to higher education. We expect a more positive impact of higher education on economic and human development and reduce poverty and inequality.

We also control for *unemployment* measured as the unemployment rate (%). Martínez, Ayala, and Ruiz-Huerta (2001) in a study of Organization for Economic Co-operation and Development (OECD) countries found increased risk of falling into poverty and inequality to be associated with unemployment. Thus, higher unemployment rate is expected to lead to higher inequality and poverty but lower growth and welfare. Saunders (2002) also similarly found that unemployment leads to higher poverty and inequality. The unemployed are typ-

ically found at the bottom decile of the income distribution hence are more associated with higher poverty and inequality levels (Martínez et al., 2001). Other studies found that unemployment leads to lower growth and welfare (Anton Muscatelli and Tirelli, 2001; Hotchkiss et al., 2020). Higher unemployment rate means less contribution by the unemployed to the growth and development of a country. As the unemployed remains unproductive, they are likely to fall into poverty and the bottom income decile leading to lower welfare and hence contributing to less to economic growth and development. We therefore expect unemployment to have a negative impact on economic and human development while having a positive impact on poverty and inequality.

We measure *inflation* using the change in consumer price index (%). Empirical evidence has shown increased poverty and inequality levels to be associated with higher inflation (Agénor,1998; Albanesi, 2007; Doumbia, 2019). Romer and Romer (1998) however argued that the relationship between inflation and poverty may differ in relation to whether in the short or long-run. The thinking is that unemployment reduces in the short-run resulting from unanticipated inflation which is relatively beneficial to the poor. Inflation however cannot reduce unemployment permanently in the long-run. On growth, Bruno and Easterly (1998) found no support of a threshold effect of inflation on growth. However, Fisher (1993) showed that the relationship between inflation and growth is non-linear with low rates of inflation below the threshold having a positive impact on growth while inflation rates above the threshold reduces growth. We therefore expect either a positive or negative impact of inflation on development outcomes suggesting a possible threshold effect.

We also control for *financial development* measured as total domestic credit to the private sector ratio (as % GDP). The relationship between financial development and development outcomes has remained ambiguous (Dollar and Kraay, 2002). Demirguc-Kunt and Levine (2004) indicate that, whether financial development benefits the whole population or not is not widely conclusive. For instance, Beck et al. (2004) found that countries with well-developed financial intermediaries see faster declines in inequality and poverty. This corroborates the evidence of other studies (Jalilian and Kirkpatrick, 2002; World Bank, 2001) that found that the wider provision of financial services affords the poor and marginalized the opportunity to save and draw on these savings for loans or credits to start or invest in a business to generate income reducing poverty and inequality while improving welfare and

having the potential for economic growth. Dollar and Kraay (2002) also provided evidence of that financial development can drive growth. However, other studies found that financial development reduced growth and human development or welfare and increase inequality (Dwumfour et al., 2017; Dwumfour, 2020; Gohou and Soumare, 2012; Soumare, 2015). The argument is that development of the financial sector is not pro-poor, hence provision of credit tends to favor the rich. This is mostly the case when higher collateral along with other demanding loan requirements make credit acquisition expensive to the poor (Galor and Zeira, 1993; Haber et al., 2003; Stiglitz, 1998), which further widens the inequality gap. We therefore expect either a positive or negative impact of financial development on development outcomes.

2.3 Identification strategy

To identify the causal relationship between development and FDI, the study uses the 2SLS instrumental variables (IV) as the main estimation technique. We adopt an instrumental variables approach with the first-stage regression given in Equation (2) below:

$$FDI_{i,t} = \beta_0 + \beta_1 BITs_{i,t} + \beta_2 R\&D_{i,t} + \boldsymbol{\eta Controls}_{i,t} + \xi_{i,t} \tag{2}$$

All variables are as defined earlier, *BITs* is the total number of bilateral investment treaties (BITs) ratified and come into force by a country at time t with other countries. We scale the number of treaties per 100,000 of adult population. This allows us to capture the number of treaties a country signs to allow for private capital inflows in the country relative to its adult population. BITs are voluntary treaties that two countries sign with the basic aim to protect foreign investment. These agreements are in their nature designed with the underlying aim to encourage foreign investment and protect same by having clauses or rules that protect the foreign investment against political risk. These treaties normally encourage principles such as treating foreign investors same as host country investors, providing adequate compensation to foreign investors where their assets are exploited and indicating an independent body like the International Center for Settlement of Investment Disputes (ICSID) to settle disputes. Despite the obvious variations in these BITs, they all share a common provision – to protect investor's investments (Bhagwat, et al., 2021). We therefore find BITs as a plausible

instrument given that its impact on economic growth, poverty, inequality and welfare can only be through higher foreign investment (FDI). Hence, *BITs* is uncorrelated with $\xi_{i,t}$ –this satisfies the exclusion restriction. The main IV estimates are based on Equation (1). We also use the GMM technique following from previous growth studies. This is because development may persist therefore we include the lag of development as robustness checks.

2.4 Testing the interaction between FDI and R&D

In order to examine whether FDIs and R&D are substitutes or complements, we follow Equation (3) below:

$$DEV_{i,t} = \varphi_0 + \varphi_1 FDI_{i,t} + \varphi_2 R\&D_{i,t} + \varphi_3 (FDI_{i,t} \times R\&D_{i,t}) + \boldsymbol{\gamma Controls}_{i,t} + \zeta_{i,t} \quad (3)$$

where all variables are as defined. The variable of interest is $(FDI_{i,t} \times R\&D_{i,t})$ which represents the interaction term between FDI and R&D. The coefficient of interest is φ_3 which is expected to be either positive or negative. A positive sign indicates that FDI and R&D are complements in relation to economic or human development but substitutes in relation to poverty or inequality, while a negative sign indicates that FDI and R&D are substitutes in relation to economic or human development but complements in relation to poverty and inequality. Following from this, the study provides the marginal effect plots. As robustness, Equation (3) is also estimated using the GMM technique by including the lag of the dependent variable.

2.5 Descriptive statistics

Table 1 presents the summary statistics. From the table, mean per capita GDP is around 8 with a maximum around 12. For our inequality measure, we see wide variation from a minimum of 23 to a maximum of 65 indicating high levels of inequality around the world. On all our poverty measures, there is widespread poverty with a lot of people living below the various poverty lines from an average of 6% to 27% progressively as the poverty line increases. This shows that the higher the poverty line, the more poverty to be recorded,

thus, people are likely to fall below the poverty. Average HDI is 0.69 showing moderate level of human development but when adjusted for inequality, iHDI averages 0.57 showing lower level of human development. Average net FDI inflows is around 6% with a minimum of -58% and a maximum of 452%. This implies the wide variation in the net inflows of FDIs to countries in the sample and gives a broader perspective of the sample to study how relevant FDIs in these countries are in promoting development. R&D expenditure however records an average of around 0.98% of GDP with a minimum of 0.01% and a maximum of 4.9%. Again, we see that while some countries barely spend on R&D, others seem to relatively have a decent R&D expenditure share of GDP. Table 1 also shows the average number of BITs per country is around 24. On education, we see a wide gap between secondary and tertiary enrolment with more enrolment seen at the secondary level averaging 81% compared to an average of 39% at the tertiary level. This may suggest that not many people progress to the tertiary level after secondary school. Average credit to the private sector ratio is around 49% with inflation averaging 5% over the sample period. Unemployment rate averages around 8% over the sample period.

[Insert Table 1 Here]

3 Results and Discussion

3.1 Baseline results

Here, we present the baseline results using the FE estimates in Tables 2 and 3. From the tables, we see that in almost all the estimations, FDI has no significant impact on our dependent variables. This may suggest a downward bias resulting from endogeneity issues between FDI and the development outcomes. We therefore proceed with the main IV estimations.

[Insert Tables 2 and 3 Here]

3.2 Main IV results

To pin down the causality between development and FDI, we use the IV approach. Since we use a single instrument, it is appropriate to indicate the estimates of the just-identified model as recommended by Angrist and Pischke (2009) given that the test for over-identification restrictions cannot be estimated. In addition, we test the sensitivity of the estimates by starting with a baseline estimates with no controls then add the controls subsequently as a way of also checking the exogeneity assumption (Altonji et al., 2005). As can be seen in Table 4 to 10, we see that our main variables of interest remain statistically significant after adding the controls. From these tables, we also see that the coefficient of BITs in the first stage is positive and statistically significant. Also, the Cragg-Donald (1993) Wald F-statistics test of weak identification is rejected as the values are greater than the estimated critical values from 5.53 (25% critical value) to 16.38 (10% critical value) as suggested by Stock-Yogo (2005), indicating that the models are identified, and the instrument is relevant. These satisfy the two conditions. First, our instrumental variable, BITs, satisfies the relevance condition, as it is positively correlated with inward FDI theoretically and the first stage regression results confirms this with the coefficient of BITs being positive and statistically significant. Second, BITs satisfy the exclusion restriction. Intuitively, BITs can only have an impact on our development outcomes (economic growth, poverty, and welfare) only through FDIs making BITs an appropriate exogenous instrumental variable.

The results from Table 4 show that FDI has a significant positive impact on growth in all estimations at 1% significance level. This implies the important role of FDIs in driving growth in the host countries. R&D similarly has a significant positive impact in almost all the regressions mostly at 1% significance level. Importantly, we see that compared to FDIs, the magnitude of the impact of R&D on growth is larger. For instance, from column (4), while a one percent increase in FDI net inflows results in a 0.007% increase in GDP p.c. (growth), a percentage increase in R&D results in a 0.54% increase in growth, which is about one-third standard deviation of growth. These show that FDI and R&D do not only have a statistically significant impact on growth but also have economic effect on growth with R&D having a more pronounced impact.

[Insert Table 4 Here]

To check whether FDI and R&D are substitutes or complements in relation to growth, we interact FDI and R&D. As we can see in columns (3) and (5) under GDP p.c., while the level effect of FDI and R&D remains positive and statistically significant, the interaction term is negative and statistically significant at 5% significant level or higher. This shows that FDI and R&D are substitutes. This is confirmed by the marginal effects plots in Figure 5.

From Table 4, we can also see that FDI and R&D have a significant negative impact on inequality in all estimations at 1% significant levels. This indicates that FDI has the potential to bridge the income gap between the top and bottom earners. Quantitatively, we see again that the impact of R&D on inequality is larger than that of FDIs. For instance, from column (9), a one percent increase in FDIs reduces inequality by 0.21%, while a one percent increase in R&D leads to a 2.43% decrease in inequality. Here also, from columns (8) and (10), we see that the interaction of FDI and R&D is positive while the level effects of these variables remain negative. This is also demonstrated by the marginal effect plots in Figure 5, which confirms that FDI and R&D are substitutes in their relationship with income inequality.

[Insert Figure 5 Here]

Moving onto human development, from Table 5 the results show a significant positive impact of both FDI and R&D on both HDI and iHDI at 1% signficance level. Again, these results confirm the important roles of both FDI and R&D in improving human development. We however see that the impact of R&D is larger than that of FDI. For instance, from columns (4) and (9), a one percent increase in FDI leads to an increase of 0.001 and 0.01 points on HDI and iHDI respectively. Meanwhile, from the same columns, a one percent increase in R&D leads to a 0.053 and 0.130 points increase in HDI and iHDI respectively. This shows that countries are more likely to improve more in their human development from expenditure in R&D than FDI inflows. Again, the interaction of FDI and R&D as seen in columns (3), (5), (8) and (10) show that FDI and R&D are substitutes. The marginal effects plots again Figure 5 (panel e to h) further confirms these results.

[Insert Table 5 Here]

The results on poverty headcount are presented in Tables 6 and 7. From the tables, we again

find a significant negative impact of FDI on all poverty measures of at least 5% confidence level, while we find a negative impact of R&D on most of the poverty measures with at least 10% significance level. From columns (4) and (9) of both Tables 6 and 7, we see that a one percent increase in FDI leads to a 0.03%, 0.08%, 0.17% and 0.20% decrease in poverty headcount at $1.90, $3.20, $5.50 and, multidimensional poverty respectively. We see a progressive impact of FDI on poverty as the poverty line is increased from $1.90 to $5.50 and to a multidimensional measure. We find similar qualitative results for R&D. However, quantitatively, we see that the impact of R&D on poverty is larger than the impact of FDI. For instance, from columns (4) of both Tables 6 and 7, we see that a one percent increase in R&D leads to a 0.37%, and 2.75% decrease in poverty headcount at $1.90 and $5.50 respectively. Also, from column (9) of Table 6, the impact of R&D on poverty headcount at $3.20 is 0.11 though not significant but from column (9) of Table 7, a one percent increase in R&D leads to a 6.07% decrease in multidimensional poverty. These results further show a larger impact of R&D on poverty than do FDIs. Here also, the interaction of FDI and R&D show that these variables are substitutes in their relationship with poverty. The marginal effects in Figure 6 further confirms these results.

[Insert Table 6 and 7 Here]

[Insert Figure 6 Here]

On the controls, the variables generally confirm our expectations. Importantly, in line with the literature, we find that ICT infrastructure helps to promote growth, improve human development and reduce poverty levels. As noted earlier, improvement in the access and penetration of ICT infrastructure affords a larger proportion of the population to access the formal economy and essential services. This is likely to help improve productivity, leading to growth, help bridge the gap between the poor and rich as both have access to the same available technology and hence lead to the improvement in the standard of living and well-being. These results are consistent with studies like those of Asongu et al. (2017), Gohou and Soumaré (2012) and The World Bank (2012).

On education, we find evidence of returns to education as people progress in the educational ladder. While, the impact of secondary education on growth, inequality and poverty is weak with some few significant instances, we find that generally, the impact of tertiary education is significant in improving growth, reducing inequality and poverty in almost all the

estimations. This implies more economic development is achieved as more people progress to attain new skills and knowledge through higher level of education especially at the tertiary level. These results are consistent with the studies of Gyimah-Brempong et al. (2006) and Appleton et al. (2010) who also found education to increase growth and development and reduce poverty and inequality.

On financial development, we find an ambiguous impact on development outcomes. Specifically, we find that financial development generally improve growth but increase inequality and reduce human development. Financial development however has no significant impact on poverty. This shows that while development of the financial sector can improve growth, the poor do not seem to benefit from this growth and importantly, inequality is widened and human development is reduced. This suggests the failure of the trickle-down hypothesis[3]. These results are similar to the findings of Dwumfour et al. (2017), Dwumfour, (2020), Gohou and Soumare (2012), and Soumare (2015). Indeed, the studies suggest that provision of credit by financial intermediaries seem to benefit the rich than the poor due to tight credit conditions required of loan applications. The poor and vulnerable are most likely not able to meet these conditions hence inequality is likely to be widened even though credit grows. We find similar results for inflation. Inflation reduces growth and human development but reduces inequality. This may suggest the non-linear impact of inflation on development as discussed earlier. Furthermore, unemployment generally reduce growth, increase inequality and poverty. We now proceed to examine the non-linear impact of FDI on development outcomes.

3.3 Testing the non-linear impact of FDI on development

Following the literature, we test the non-linear effect of FDI on development. This is specified in Equation (4) below.

$$DEV_{i,t} = \alpha_0 + \alpha_1 FDI_{i,t} + \alpha_2 FDI^2{}_{i,t} + \alpha_3 R\&D_{i,t} + \boldsymbol{\gamma Controls}_{i,t} + \varepsilon_{i,t} \tag{4}$$

[3]This is based on the argument that development of the financial sector will eventually reach and benefit the poor through increasing growth.

Here, we expect the coefficient of FDI, α_1, to be positive while that of FDI^2, α_2, is negative which would indicate the non-linear effect of FDI on development. In this case, this will be an inverted U-shaped relationship with FDI having an initial positive impact on development up to a threshold after which the relationship turns to be negative. We calculate the turning points by taking the partial derivative of Equation (4) with respect to FDI and setting it to zero as shown below:

$$\frac{\partial(DEV_{i,t})}{\partial(FDI_{i,t})} = \alpha_1 + 2\alpha_2 FDI_{i,t} = 0 \tag{5}$$

$$FDI_{i,t} = -\frac{\alpha_1}{2\alpha_2} \tag{6}$$

The results are presented in Tables 8, 9, and 10. From the tables, we see a non-linear impact of FDIs on development. For instance, from columns (2) and (3) in Table 8, the average threshold effect of FDI on growth occurs around 171% at which point FDI begins to hurt development. The interaction between FDI and R&D remains negative while the interaction between FDI^2 and R&D becomes positive suggesting the complementary role of R&D after FDI reaches its threshold. This is confirmed by the marginal effects evaluated at the minimum, mean and maximum R&D values from the interaction between FDI, FDI^2, and R&D which show a positive marginal effect as R&D increases along with non-linear effect of FDIs. This indicates that R&D complements FDIs only when FDI reaches its threshold and begins to hurt development. We see similar results for inequality where in this case we find an average FDI threshold of 190%. Again, the interaction between FDI and R&D remains positive while the interaction between FDI^2 and R&D becomes negative suggesting the complementary role of R&D after FDI reaches its threshold. We find a negative marginal effect from the interactions showing that R&D complements FDI to reduce inequality as R&D increases along with the non-linear effect of FDI on inequality.

[Insert Table 8 Here]

In Table 9, we find the non-linear impact of FDI on HDI and iHDI with an average threshold of 154% and 114% for HDI and iHDI respectively. Here also, the interaction between FDI and R&D remains negative while the interaction between FDI^2 and R&D becomes positive suggesting the complementary role of R&D after FDI reaches its threshold. Again, we find a

positive marginal effect as R&D increases along with the non-linear effect of FDIs in relation to HDI and iHDI showing the complementary role of FDI and R&D after FDI reaches its threshold.

[Insert Table 9 Here]

From Table 10, we see the non-linear impact of FDI on all the poverty measures. The average threshold FDI from the table is 193%. Here also, the interaction between FDI and R&D remains positive while the interaction between FDI^2 and R&D becomes negative indicating the complementary role of R&D after FDI reaches its threshold. We find a negative marginal effect from the interactions showing that R&D complements FDI to reduce poverty as R&D increases along with the non-linear effect of FDI on inequality.

[Insert Table 10 Here]

These thresholds seem large given that some countries in the sample have larger FDI inflows as a share of GDP. As we will show later, the thresholds are significantly lower when we remove the sample of top and bottom deciles of FDI and R&D. Importantly, the policy relevance of these results is that countries need to invest more in R&D in anticipation of the threshold effect of FDIs because at this point, it is sufficient adaptive or absorptive capacity of countries, through higher R&D investments, that can help mitigate the negative impact of FDIs on development.

3.4 Robustness tests

In this section, we conduct additional analysis using different technique, the GMM estimation, and also consider different specifications of the models to provide robustness to the earlier results. Again, we check whether our main IV results remain robust for sub-samples including comparing results for developed and developing countries and estimating a sample excluding the top and bottom deciles of FDI and R&D.

3.4.1 Using alternative approach: GMM estimate

Given that the specification of the GMM model includes the lag of dependent variable, there is likely to arise autocorrelations. Roodman (2009) suggested addressing this possible endogeneity through the use of the GMM technique, in this case, the two-step system GMM. Here, sources of the dynamic endogeneity, any unobserved heterogeneity and simultaneity are addressed by this technique using the lags of the independent variables as instruments and internal transformations (Roodman, 2009). Since the lags of the independent variables are used as instruments, we lose data in the estimations hence we adopt the collapsing method of Holtz-Eakin et al. (1988) reduce the loss of data points. We also use Arellano and Bover (1995)'s forward orthogonalization method to limit the number of instruments. To check the validity of our estimates, we test for over-identifying restrictions using the Hansen test by reporting the p-value. Our estimates fail to reject the null hypothesis of valid over-identifying restrictions. Again, for system GMM estimates, it is indicative to test any correlations between deeper lags of the intruments and disturbances (Arellano and Bond, 1991). Based on the test of the second order serial correlations, AR(2), we reject the null of serial correlations.

The results in Tables 11 and 12 further confirm our earlier results that while FDI and R&D have positive (negative) impact on growth and human development (inequality and poverty), their interactions show a substitution effect in this relationship. These are also confirmed by the marginal effect plots in Figure 7. This further shows that countries with relatively low expenditures in R&D tend to be dependent on FDI for development, while countries with higher expenditures in R&D are less dependent on FDIs for their development.

[Insert Tables 11 and 12 Here]

[Insert Figure 7 Here]

3.4.2 Using alternative specification: lags of independent variables

Here, we re-estimate our benchmark econometric model using the lag of the independent variables. Perhaps, FDI and R&D may have gestation lag before they exert some impact on development. We specify this relationship in Equation (7) below:

$$DEV_{i,t} = \alpha_0 + \alpha_1 FDI_{i,t-1} + \alpha_2 R\&D_{i,t-1} + \boldsymbol{\gamma Controls}_{i,t-1} + \varepsilon_{i,t} \tag{7}$$

The results are presented in Tables 13 and 14. Similar to the earlier findings, FDI and R&D have significant impact on development outcomes. Specifically, from Table 13, we see that FDI has a positive impact on growth and human development at 1% level in all estimations. Quantitatively, the impact is very similar to the contemporaneous effect observed earlier. Similar to the earlier findings, from columns (1), (5) and (7), a one percent increase in FDI leads to a 0.008%, 0.001, and 0.008 points increase in growth, HDI and iHDI respectively. Meanwhile from column (3), a one percent increase in FDI leads to a 0.18% decrease in the Gini index. Looking at R&D, a one percent increase in R&D causes a 0.53%, 0.052 and 0.119 points increase in growth, HDI and iHDI respectively. Furthermore, a one percent increase in R&D results in a considerable decrease of 2.23% in the Gini index. From Table 14, the results are also quantitatively similar to the earlier results. From columns (1), (3), (5) and (7), we find that one percent increase in FDI leads to a 0.03%, 0.08%, 0.17% and 0.22% decrease in poverty headcount at $1.90, $3.20, $5.50 and multidimensional poverty respectively. Moreover, a one percent increase in R&D leads to a 0.43%, 2.78%, and 6.27% decrease in poverty headcount at $1.90, $5.50 and multidimensional poverty respectively. The interaction between lags of FDI and R&D and the marginal plots in Figure 8 further confirms the earlier results that FDI and R&D are substitutes.

[Insert Tables 13 and 14 Here]

[Insert Figure 8 Here]

3.4.3 Dividing data sample based on the development status of countries

As further robustness checks, we examine how the development status of the countries influences the relationship between FDI and development outcomes and the role of R&D. We do this by using a dummy variable of whether a country is developed or developing (based on the United Nation's classification) with our key variables as shown below:

$$\begin{aligned} DEV_{i,t} = \varphi_0 + \varphi_1 FDI_{i,t} \times Developed_{it} + \varphi_2 FDI_{i,t} \times Developing_{it} + \varphi_3 R\&D_{i,t} \times Developed_{it} \\ + \varphi_4 R\&D_{i,t} \times Developing_{it} + \varphi_5 (FDI_{i,t} \times R\&D_{i,t} \times Developed_{it}) + \\ \varphi_6 (FDI_{i,t} \times R\&D_{i,t} \times Developing_{it}) + \boldsymbol{\gamma Controls}_{i,t} + \zeta_{i,t} \quad (8) \end{aligned}$$

The results are reported in Tables 15 and 16. From the tables, we see that the coefficient of BITs in the first stage is positive and statistically significant. Also, the Cragg-Donald (1993) Wald F-statistics test of weak identification is rejected as the values are greater than the estimated critical values from 3.63 (25% critical value) to 7.03 (10% critical value) as suggested by Stock-Yogo (2005), indicating that the models are identified, and the instrument is relevant.

From the tables, we see that FDI inflows into developing countries have a significant impact on development outcomes: mainly Gini, HDI, iHDI, and on headcount poverty ($1.90 and $3.20) with significance at 1% level. Economically, we see that a one percent increase in FDI leads to a 0.87%, 0.87%, and 1.10% decrease in the Gini index, headcount poverty at $1.90 and $3.20 respectively. Moreover, one percent increase in FDI leads to a 0.011 and 0.017 points increase in HDI and iHDI respectively. However, for developed countries, we see that FDI inflows have a significant impact on development outcomes mainly on: Gini, HDI, iHDI, and on headcount poverty ($1.90, $3.20 and $5.50) with significance level of at least 5%. Meanwhile, for these countries a one percent increase in FDI leads to a 0.20%, 0.04%, 0.08% and 0.14% decrease in the Gini index, headcount poverty at $1.90 , $3.20 and $5.50 respectively. Again, a one percent increase in FDI leads to a 0.001 and 0.009 points increase in HDI and iHDI respectively.

Moving on to the impact of R&D, we find that the development impact of R&D is more pronounced in developed countries than in developing countries. Here, R&D in developing

countries only has a significant positive impact on HDI and iHDI with a one percent increase in R&D leading to a 0.020 and 0.080 points increase in HDI and iHDI respectively. For developed countries, a one percent increase in R&D leads to a 0.63% in GDP per capita, and a substantial increase of 0.074 and 0.141 points increase in HDI and iHDI respectively. A one percent increase in R&D however leads to a 3.04%, 0.44%, 1.09% 2.14% and 5.39% decrease in the inequality (Gini), headcount poverty at $1.90 , $3.20, $5.50 and multidimensional poverty respectively. These effects are quite substantial especially for developed countries showing the important role of R&D in these countries.

[Insert Tables 15 and 16 Here]

These results show that the development impact of FDI is larger for developing countries than for developed countries. This may explain why these countries tend to be dependent on FDIs. However, even though R&D only has a significant impact on HDI and iHDI for developing countries, the impact is more pronounced than that of the FDIs. On the other hand, we find that R&D in developed countries plays a significant development role showing more larger impact on growth, inequality, human development and poverty. This further validates the argument that countries tend to benefit more from R&D than they do from FDIs and that countries, particularly developing, should focus more on expenditures in R&D.

3.4.4 Excluding top and bottom deciles of FDI and R&D

Given that some countries have comparatively high net FDI inflows and R&D as share of GDP, we proceed to estimate the results by removing the top and bottom deciles of FDI and R&D from our data sample. This is to help consider the policy perspective of the countries falling within the new sample in terms of the relevant thresholds of FDIs. The results are reported in Tables 17 and 18. Here also, the coefficient of BITs in the first stage is positive and statistically significant. Again, except for the results for iHDI and multidimensional poverty in Table 17, the Cragg-Donald (1993) Wald F-statistics test of weak identification is rejected for all estimations as the values are greater than the estimated critical values from 3.63 (25% critical value) to 7.03 (10% critical value) as suggested by Stock-Yogo (2005), indicating that the models are identified, and the instrument is relevant.

The results from Table 17 are qualitatively similar to our earlier findings with FDI having a significant positive impact on growth and HDI and a significant negative impact on inequality and all poverty headcount measures. While we observe a much greater impact of FDI on the development outcomes compared to the results of the full sample, we still see that R&D has a more pronounced impact on the development outcomes than FDIs. We therefore confirm the earlier results that FDIs and R&D are substitutes with the interaction being negative. The marginal effect plots in Figure 9 further confirms that FDI and R&D are substitutes. From Table 18, we confirm the non-linear impact of FDI on the development outcomes. We however find that the thresholds are significantly lower averaging around 6% showing that countries that fall between the bottom and top deciles even experience the non-linear effect of FDIs at much lower FDI shares of GDP. This suggests the even more important role of absorptive capacity of these countries through higher R&D investments to mitigate the negative threshold effect of FDI on development. Again, we find the interaction of FDI and R&D is negative indicating that the two are substitutes. This is further confirmed by the marginal effects plots in Figure 9.

[Insert Tables 17 and 18 Here]

[Insert Figure 9 Here]

4 Conclusion and Policy Implications

We examine the influence of FDI in the development process and the role of R&D in this process. Our results show that both FDIs and R&D are important in driving growth, improving human development, reducing income inequality and poverty. We however find that the development impact of R&D is more pronounced than FDIs. Indeed, we find that FDIs and R&D are substitutes in the development process. This means more investments/expenditures in R&D leads to less dependence on FDI for development, and vice versa. Importantly, policymakers should not only focus on promoting FDI inflows but spend more on R&D in their domestic countries as a way of driving innovation and their productive capacities to be able to achieve the needed development.

This is crucial given that we also find the vanishing effect of FDIs: FDIs begin to hurt development after a certain threshold. This may be because below certain FDI thresholds, FDIs are relevant as they provide the initial benefits of increasing growth and human development and also reducing income inequality and poverty. However, after certain thresholds of FDIs, foreign investors who may not necessarily focus on development areas of host countries leading to adverse selection. In particular, foreign investors who have control of domestic firms are likely to have significant influence in the respective host countries and thus repatriation of profits and other financial transaction decisions may deteriorate balance of payments among other consequences for the host country. In terms of these FDI reversals, higher control of foreign investors who may have large leverage in the domestic market may lead them in lending same to the parent company when the need be. Besides, where the parent company or other subsidiaries have debt on the books on these subsidiaries, these loans can be recalled leading to onward consequences on the domestic market.

This becomes even critical in periods of major crisis like the global financial crisis (GFC) and COVID-19 pandemic. These actions of multinationals can cause instability in the macroeconomic environment particularly exchange rate volatility and instability in the financial sector. We see the crucial role of R&D especially after FDIs reaches the threshold and begins to hurt development. At this point R&D begins to complement FDIs given that host countries would have had enough adaptive/absorptive capacity after spending more on R&D. This has relevant policy implication in that more emphasis should be placed on the important role of R&D in driving development while promoting FDIs especially in anticipation of when FDIs reaches its threshold in the development process.

We see this to be particularly relevant for developing countries given that their developed counterparts seem to be benefiting more from R&Ds than FDIs in their development process. Interestingly, we see that while having more BITs helps increase FDI inflows for both developed and developing countries, developed countries tend to receive more FDI inflows from these treaties. In fact, we find that signing more BITs by developed countries reduces FDI inflows to developing countries. While FDIs may be the preferred form of private capital flows for developing countries, over-reliance on these flows without strong adaptive capacity through higher investment in R&D may have direct consequences for the development process when the development impact of FDIs reaches its threshold.

In conclusion, while FDI and R&D are catalyst for development, we show the importance of R&D in driving economic development and emphasize that policymakers should prioritize R&D initiatives in addition to encouraging FDI. A balance between the two must be struck to optimize the positive effects on the development of countries.

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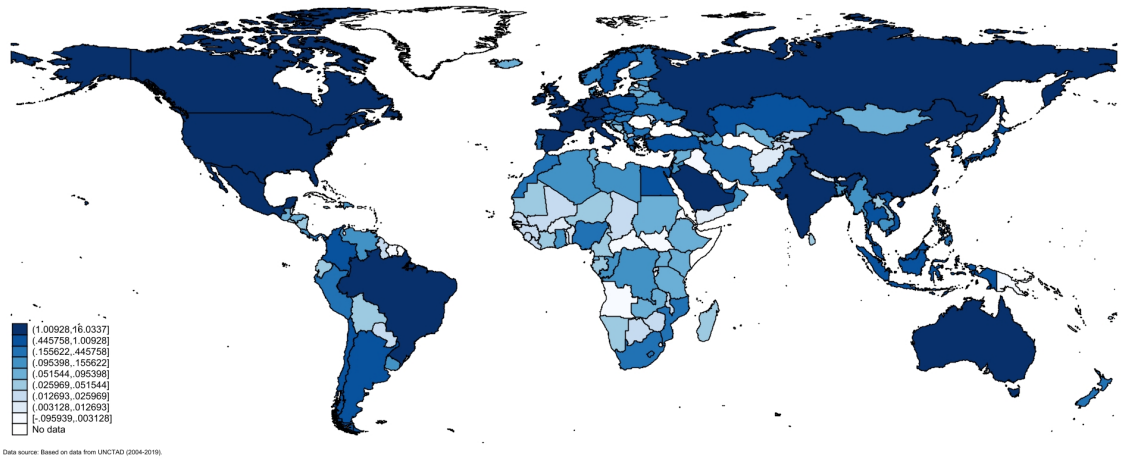


Figure 1: Average net FDI inflows – Share of world FDI inflows (2004-2019)

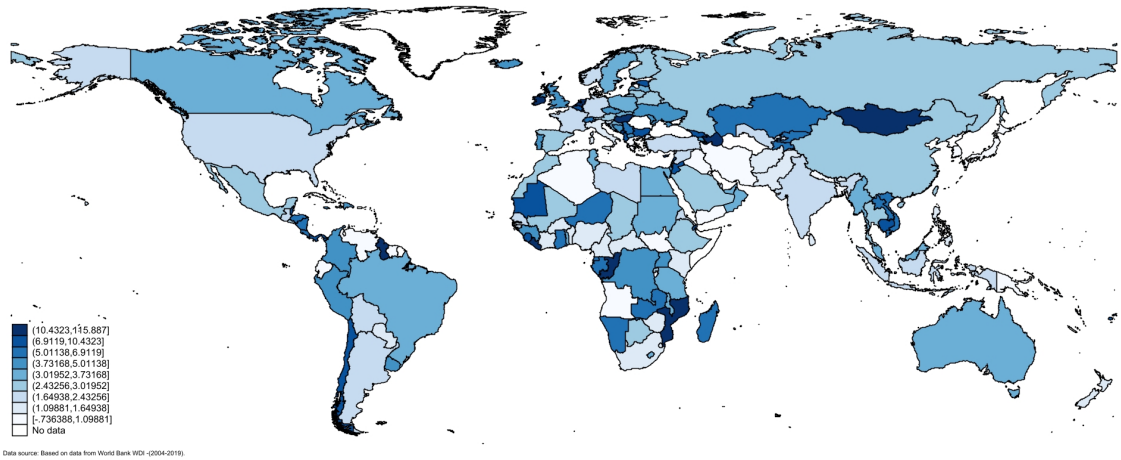


Figure 2: Average net FDI inflows – Share of GDP (2004-2019)

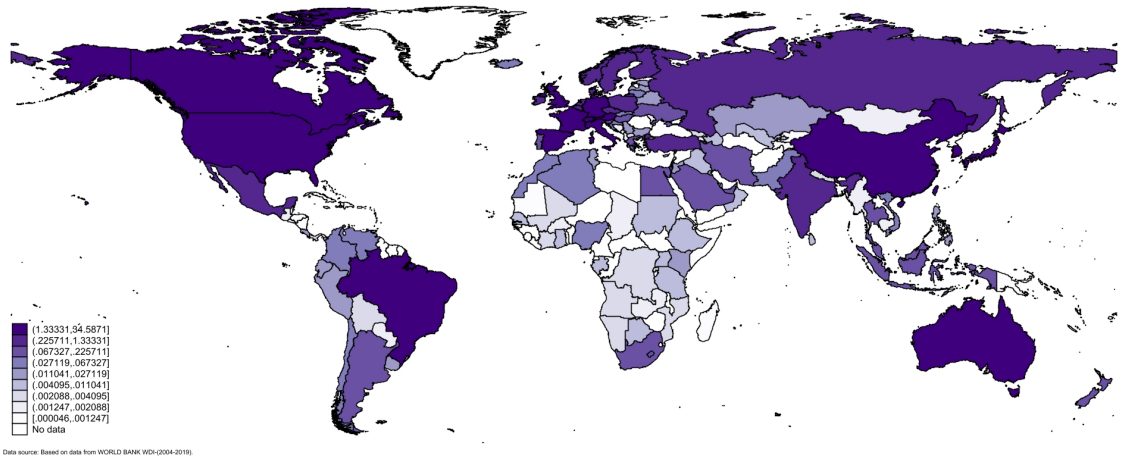


Figure 3: Average R&D expenditure – Share of world R&D (2004-2019)

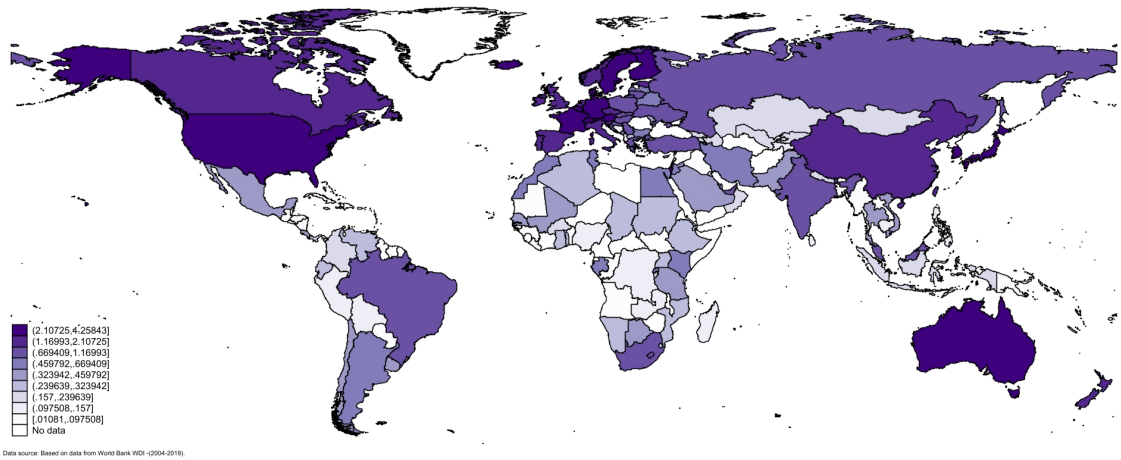
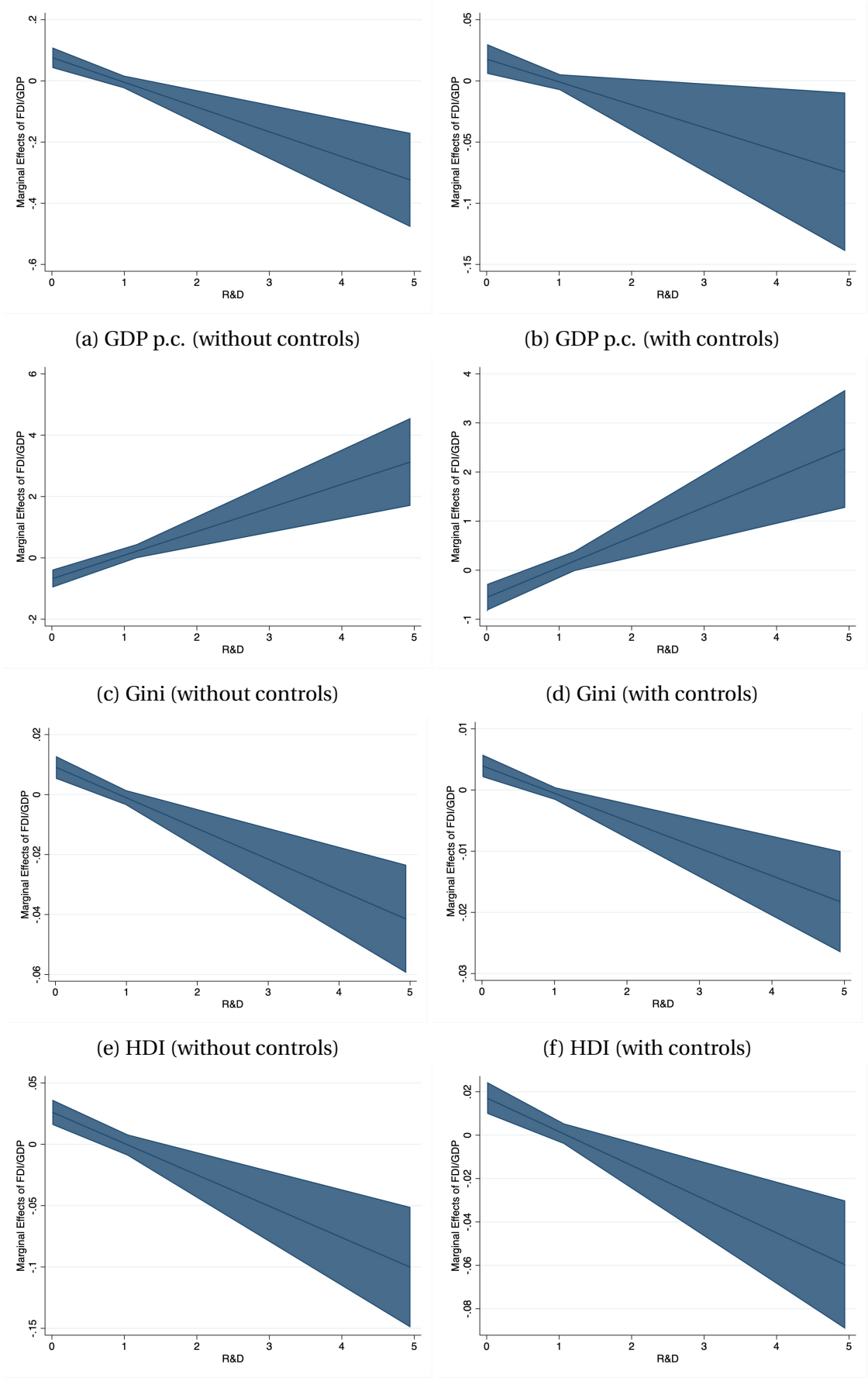


Figure 4: Average R&D expenditure – Share of GDP (2004-2019)



(a) GDP p.c. (without controls)

(b) GDP p.c. (with controls)

(c) Gini (without controls)

(d) Gini (with controls)

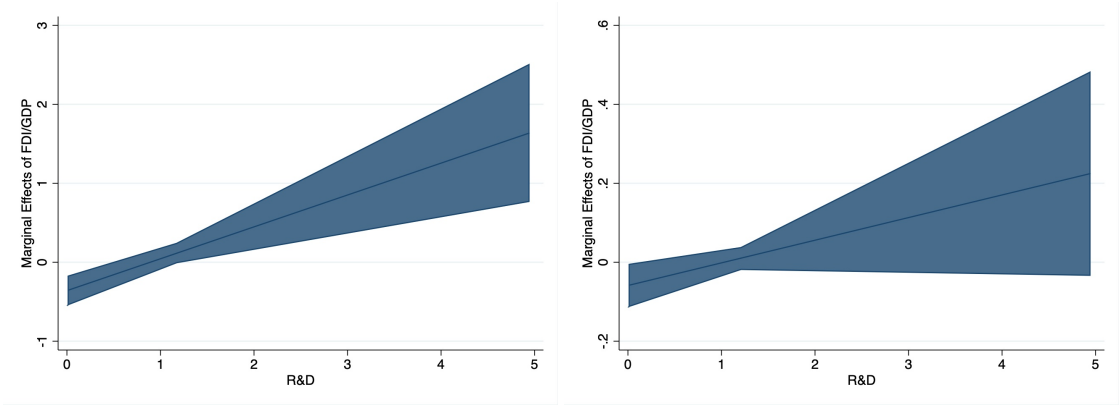
(e) HDI (without controls)

(f) HDI (with controls)

(g) iHDI (without controls)

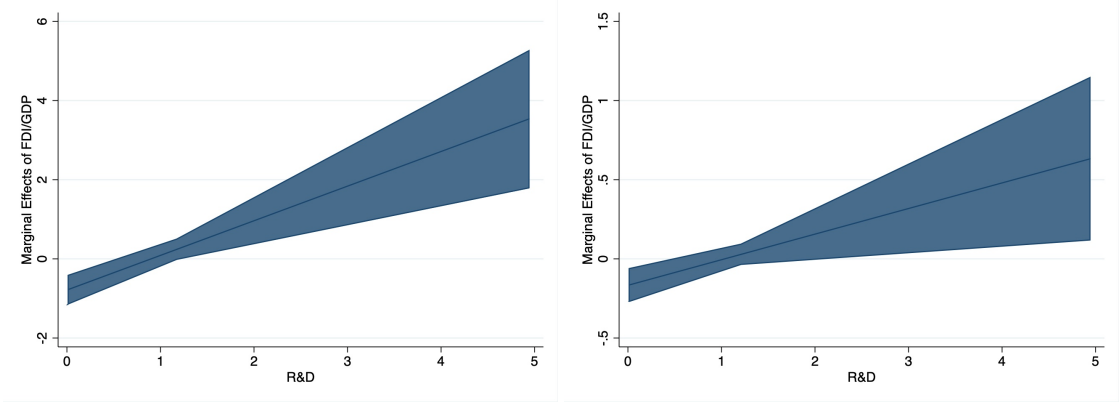
(h) iHDI (with controls)

Figure 5: Marginal effects of FDI on growth, inequality and welfare (with 95% CI), IV regression



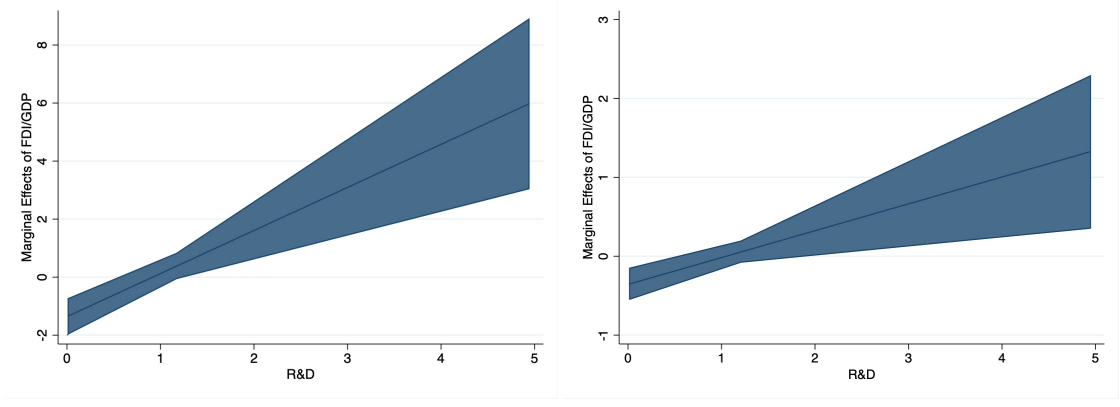
(a) Poverty ($1.90) (without controls)

(b) Poverty ($1.90) (with controls)



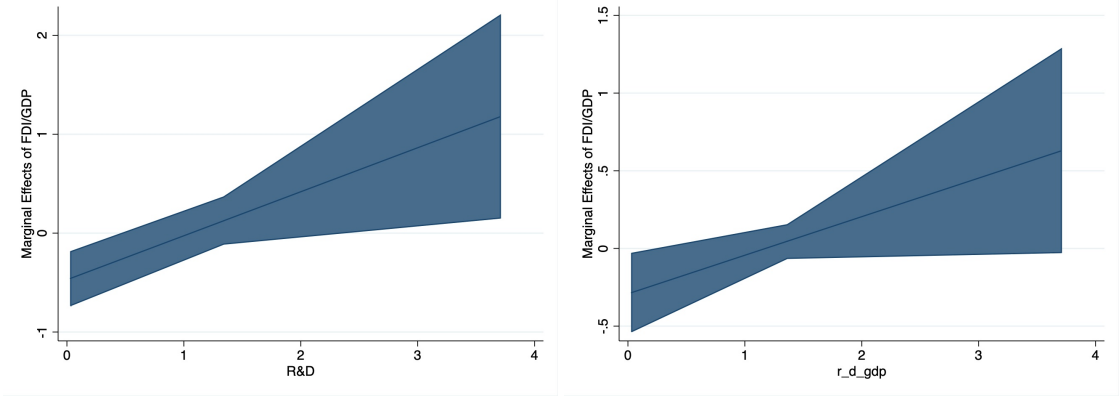
(c) Poverty ($3.2) (without controls)

(d) Poverty ($3.2) (with controls)



(e) Poverty ($5.50) (without controls)

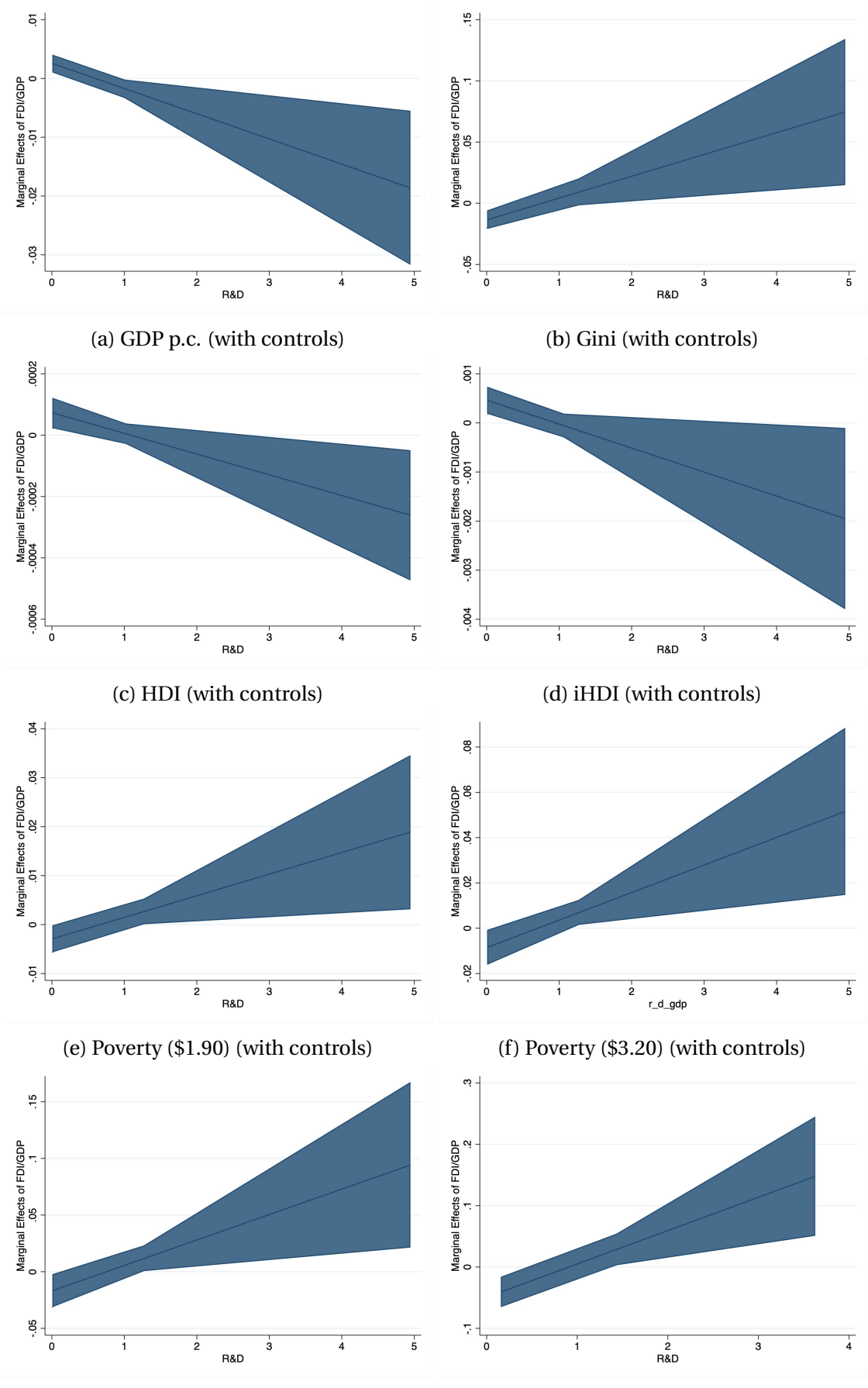
(f) Poverty ($5.50) (with controls)



(g) Md. poverty (without controls)

(h) Md. poverty (with controls)

Figure 6: Marginal effects of FDI on poverty (with 95% CI), IV regression



(a) GDP p.c. (with controls)

(b) Gini (with controls)

(c) HDI (with controls)

(d) iHDI (with controls)

(e) Poverty ($1.90) (with controls)

(f) Poverty ($3.20) (with controls)

(g) Poverty ($5.50) (with controls)

(h) Md. poverty (with controls)

Figure 7: Marginal effects of FDI on growth and development (with 95% CI), GMM estimate

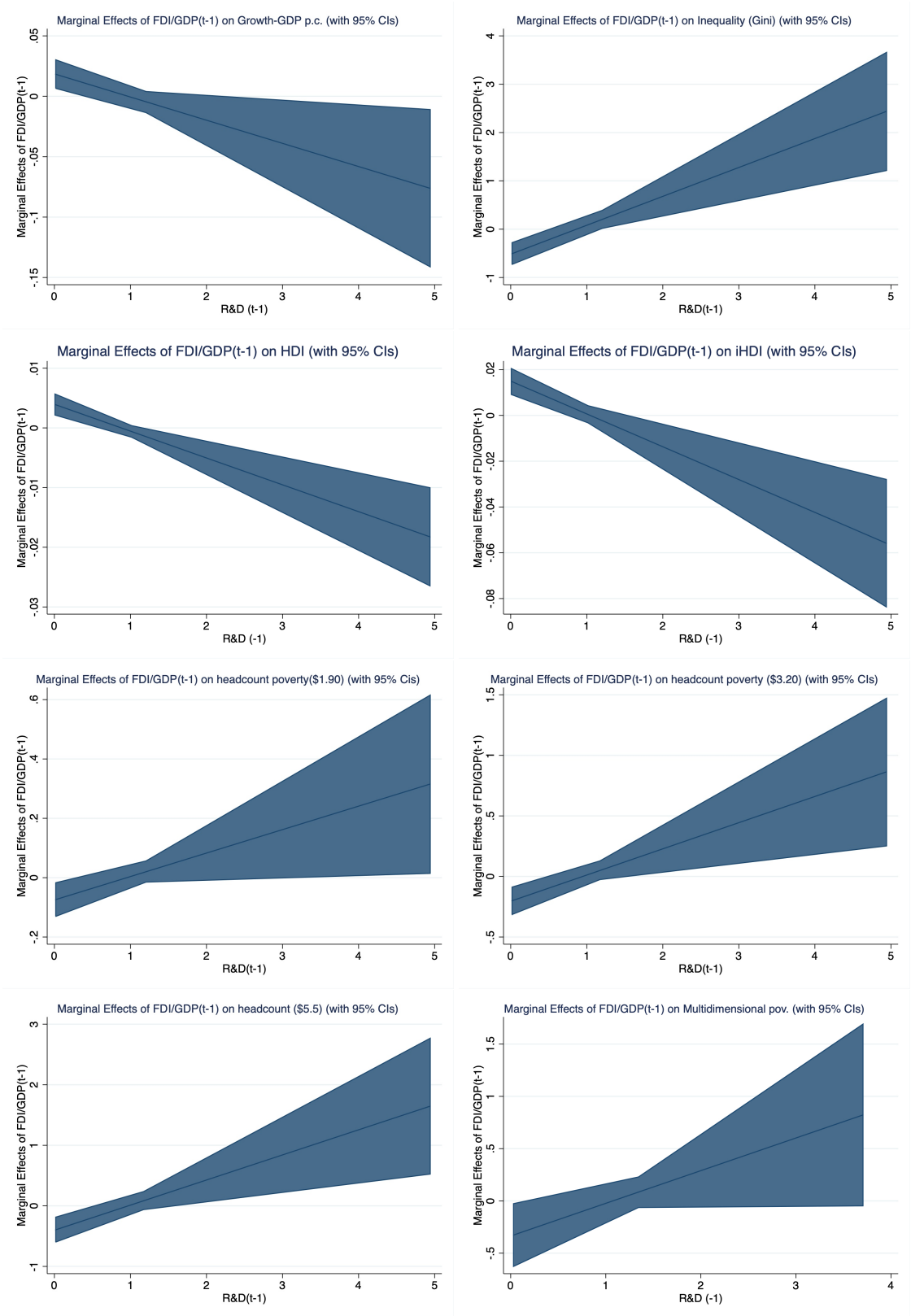


Figure 8: Marginal effects of lag of FDI on growth and development (with 95% CI), IV regression

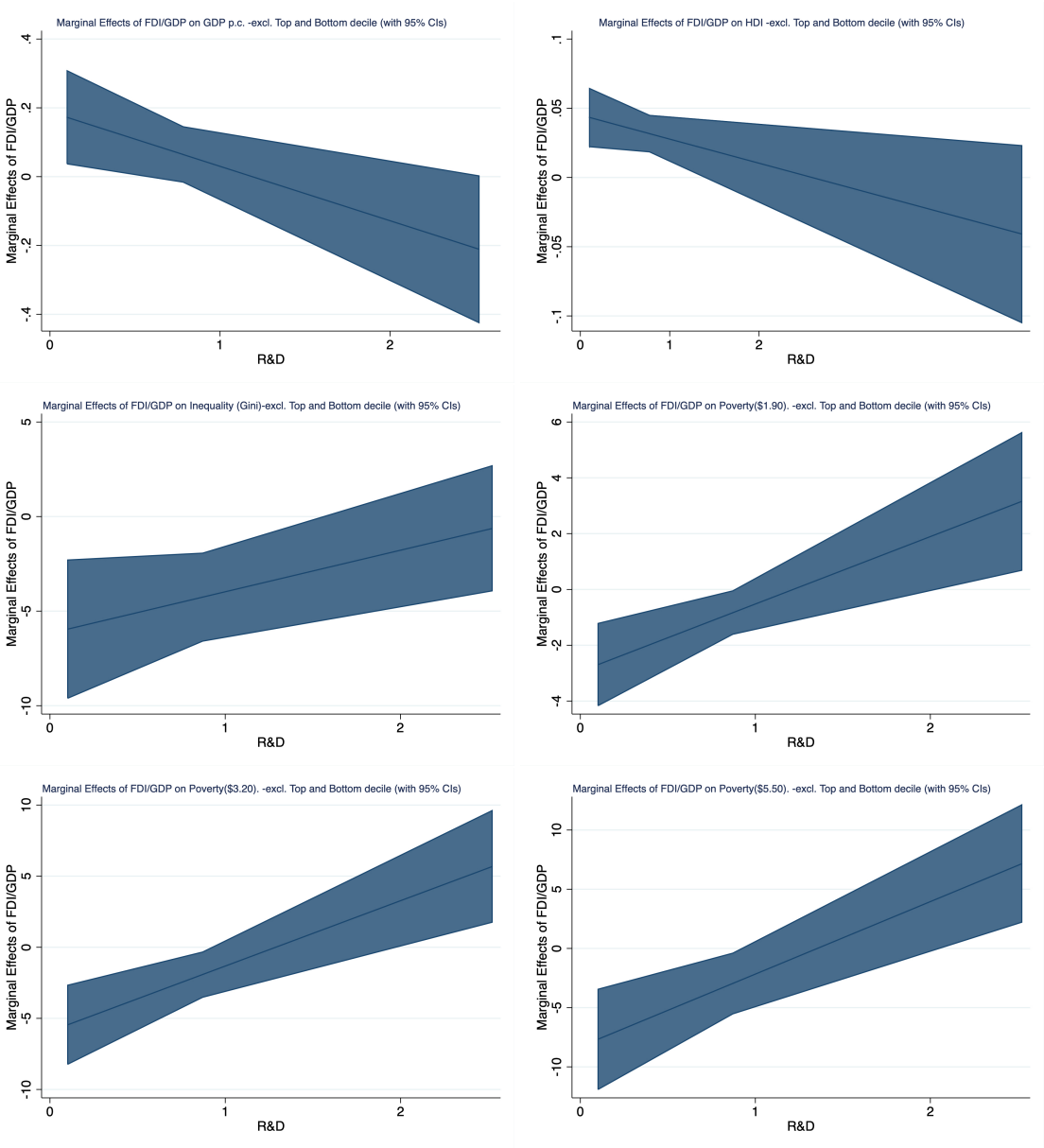


Figure 9: Marginal effects of FDI on develpoment outcomes excluding top and bottom decile of FDI and R&D (with 95% CI), IV regression

Table 1: Descriptive statistics

Variable	Full-Sample			
	Mean	Std. Dev.	Min	Max
Real GDP per capita -natural log (GDP p.c.)	8.504	1.498	4.855	11.685
Gini index (Gini)	36.810	8.155	23.200	64.800
Human development index (HDI)	0.691	0.159	0.285	0.957
Inequality-adjusted HDI (iHDI)	0.572	0.192	0.208	0.899
Headcount poverty ratio at $1.90 %population(Headcount Poverty $1.90)	6.423	13.979	0.000	94.300
Headcount poverty ratio at $3.20 %population(Headcount Poverty $3.20)	13.449	21.715	0.000	98.500
Headcount poverty ratio at $5.50 %population(Headcount Poverty $5.50)	24.489	29.268	0.000	99.700
Multidimensional headcount poverty %population (Multidimensional poverty)	26.990	11.312	2.370	74.200
Net FDI inflows as a share of GDP % (FDI/GDP)	6.209	18.240	-58.323	451.639
Research and development expenditure as a % of GDP (R&D)	0.977	0.982	0.011	4.941
No. of bilateral treaties (BITs)	24.485	26.819	0	150
Mobile and telephone subscriptions per 100 people (ICT infrastructure)	106.114	56.933	0.862	364.872
Secondary school enrolment, %Gross (Secondary education)	81.876	28.647	8.707	163.935
Tertiary school enrolment, %Gross (Tertiary education)	38.849	27.802	0.494	142.852
Domestic credit to the private sector as a % of GDP (Financial Development)	49.469	41.125	0.186	308.978
Consumer price index % (Inflation)	5.449	11.599	-60.496	379.848
Unemployment rate % (Unemployment)	7.697	5.866	0.091	37.250

Table 2: Impact of FDI on economic growth and welfare, FE regression

Variable	GDP p.c.		Income inequality (Gini)		HDI		iHDI	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FDI/GDP	-0.00006	0.0002	-0.0020	-0.0006	-0.00001	0.0001	-0.0001**	-0.0001
	(0.0002)	(0.0005)	(0.0033)	(0.0057)	(0.0000)	(0.00004)	(0.00005)	(0.0001)
R&D	0.0834*	0.0836*	0.1478	0.1474	0.0178***	0.0202***	0.0106	0.0106
	(0.0467)	(0.0467)	(0.4947)	(0.4941)	(0.0049)	(0.0054)	(0.0078)	(0.0078)
FDI/GDP × R&D		-0.0004		-0.0023		-0.0001**		0.00002
		(0.0006)		(0.0060)		(0.0001)		(0.0001)
ICT	0.0067***	0.0067***	-0.0343***	-0.0343***	0.0005***	0.0005***	0.0003*	0.0003*
	(0.0006)	(0.0006)	(0.0061)	(0.0061)	(0.00005)	(0.00005)	(0.0001)	(0.0001)
Secondary education	0.000001	0.000001	0.0002	0.0002				
	(0.0001)	(0.0001)	(0.0008)	(0.0008)				
Tertiary education	0.0017*	0.0017	-0.0114	-0.0116				
	(0.0011)	(0.0011)	(0.0113)	(0.0113)				
Financial Development	0.0003	0.0003	0.0089*	0.0090*	-0.00004	-0.00003	0.0001	0.0001
	(0.0007)	(0.0007)	(0.0052)	(0.0053)	(0.0001)	(0.0001)	(0.0002)	(0.0002)
Inflation	-0.0013	-0.0013	0.0105	0.0104	-0.0005**	-0.0005**	-0.0003	-0.0003
	(0.0021)	(0.0021)	(0.0216)	(0.0216)	(0.0002)	(0.0002)	(0.0003)	(0.0003)
Unemployment	-0.0211***	-0.0211***	0.1608***	0.1608***	-0.0008*	-0.0008*	-0.0021***	-0.0021***
	(0.0033)	(0.0033)	(0.0410)	(0.0410)	(0.0004)	(0.0004)	(0.0006)	(0.0006)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of Countries	128	128	90	90	130	130	112	112
Obs.	1131	1131	779	779	1223	1223	664	664
Adj. R2	0.99	0.99	0.96	0.96	0.99	0.99	0.99	0.99

Note: All variables are as defined earlier. *** p<0.01, ** p<0.05, * p<0.1 Robust standard errors in parenthesis

Table 3: Impact of FDI on poverty, FE regression

Variable	Headcount poverty $1.90		Headcount poverty $3.20		Headcount poverty $5.50		Multidimensional poverty	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FDI/GDP	-0.0022	-0.0032	-0.0057	-0.0078	-0.0083	-0.0084	-0.0026	0.0088
	(0.0015)	(0.0027)	(0.0041)	(0.0069)	(0.0065)	(0.0113)	(0.0085)	(0.0164)
R&D	0.2752	0.2754	0.8795	0.8800	0.9995	0.9996	-1.0175	-1.0516
	(0.3378)	(0.3383)	(0.6899)	(0.6911)	(0.9780)	(0.9785)	(1.2559)	(1.0673)
FDI/GDP × R&D		0.0016		0.0034		0.0002		-0.0142
		(0.0027)		(0.0062)		(0.0109)		(0.0167)
ICT Infrastructure	-0.0372***	-0.0372***	-0.0923***	-0.0924***	-0.1377***	-0.1377***	0.0010	0.0022
	(0.0066)	(0.0066)	(0.0163)	(0.0163)	(0.0173)	(0.0173)	(0.0255)	(0.0155)
Secondary education	-0.0015	-0.0015	-0.0046**	-0.0046**	-0.0042	-0.0042	-0.0018	-0.0017
	(0.0014)	(0.0014)	(0.0023)	(0.0023)	(0.0027)	(0.0027)	(0.0019)	(0.0155)
Tertiary education	-0.0114	-0.0112	-0.0343	-0.0340	-0.0802**	-0.0801**	-0.0545	-0.0540**
	(0.0121)	(0.0121)	(0.0245)	(0.0244)	(0.0352)	(0.0352)	(0.0344)	(0.0222)
Financial development	-0.0052	-0.0053	-0.0133	-0.0134	-0.0267*	-0.0267*	-0.0402	-0.0427***
	(0.0043)	(0.0042)	(0.0091)	(0.0091)	(0.0146)	(0.0145)	(0.0248)	(0.0158)
Inflation	0.0169	0.0169	0.0721	0.0721	0.1175	0.1175	0.2120	0.2109*
	(0.0174)	(0.0174)	(0.0511)	(0.0678)	(0.0871)	(0.0872)	(0.1602)	(0.1119)
Unemployment	0.0877***	0.0878***	0.2151***	0.2151***	0.4878***	0.4878***	0.7257***	0.7339***
	(0.0306)	(0.0307)	(0.0677)	(0.0678)	(0.1043)	(0.1043)	(0.1119)	(0.0770)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of Countries	90	90	90	90	90	90	44	44
Obs.	779	779	779	779	779	779	314	314
Adj. R^2	0.96	0.96	0.95	0.95	0.97	0.97	0.93	0.93

Note: All variables are as defined earlier. *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parenthesis

Table 4: Impact of FDI on economic growth and inequality (Gini), IV regression

Variable	GDP p.c.					Income inequality (Gini)				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
FDI/GDP	0.0921***	0.0286***	0.0761***	0.0074***	0.0178***	-0.3205***	-0.2303***	-0.6831***	-0.2147***	-0.5574***
	(0.0248)	(0.0082)	(0.0163)	(0.0025)	(0.0061)	(0.1033)	(0.0754)	(0.1478)	(0.0747)	(0.1313)
R&D		0.9510***	1.2558***	0.4298***	0.4953***		-3.1491***	-6.1353***	-2.4300***	-4.7411***
		(0.0314)	(0.0794)	(0.0342)	(0.0494)		(0.2949)	(0.7955)	(0.5855)	(0.9931)
FDI/GDP × R&D			-0.0809***		-0.0186**			0.7704***		0.6130***
			(0.0185)		(0.0078)			(0.1699)		(0.1445)
ICT Infrastructure				0.0133***	0.0136***				-0.0215**	-0.0369***
				(0.0007)	(0.0007)				(0.0094)	(0.0119)
Secondary education				0.0001	0.00003				-0.0037**	-0.0032*
				(0.0001)	(0.0001)				(0.0016)	(0.0019)
Tertiary education				0.0087***	0.0079***				-0.1410***	-0.1042***
				(0.0013)	(0.0014)				(0.0173)	(0.0224)
Financial development				0.0033***	0.0035***				0.0462**	0.0428**
				(0.0008)	(0.0008)				(0.0182)	(0.0215)
Inflation				-0.0164***	-0.0166***				-0.1186**	-0.1138**
				(0.0061)	(0.0062)				(0.0480)	(0.0562)
Unemployment				-0.0085**	-0.0090***				0.1044	0.1232*
				(0.0034)	(0.0034)				(0.0684)	(0.0760)
First Stage regression										
BITs	8.8705***	13.7681***	4.4273***	13.3312***	4.5932***	11.4574***	12.7215***	4.2233***	12.1992***	4.5207***
	(2.2090)	(3.7148)	(0.8463)	(4.1642)	(1.0016)	(3.4515)	(3.9833)	(0.9151)	(4.2430)	(1.0810)
Cragg-Donald Wald F-stats	344.55	259.20	85.25	195.65	75.53	176.13	140.34	49.91	113.22	48.85
Turning point: FDI [R&D]	-	-	15.52[0.94]	-	26.63[0.96]	-	-	7.96 [0.89]	-	7.73 [0.90]
Obs.	2707	1301	1301	1111	1111	1163	859	859	776	776

Note: All variables are as defined earlier. *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parenthesis

Table 5: Impact of FDI on welfare (HDI and iHDI), IV regression

Variable	Human Development Index (HDI)					Inequality-adjusted HDI (iHDI)				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
FDI/GDP	0.0103***	0.0032***	0.0092***	0.0014***	0.0040***	0.0331***	0.0119***	0.0263***	0.0100***	0.0172***
	(0.0028)	(0.0009)	(0.0019)	(0.0005)	(0.0009)	(0.0086)	(0.0030)	(0.0051)	(0.0026)	(0.0036)
R&D		0.0852***	0.1238***	0.0525***	0.0662***		0.1087***	0.1789***	0.1301***	0.1576***
		(0.0028)	(0.0092)	(0.0037)	(0.0060)		(0.0056)	(0.0190)	(0.0161)	(0.0198)
FDI/GDP × R&D			-0.0103***		-0.0045***			-0.0256***		-0.0156***
			(0.0022)		(0.0010)			(0.0057)		(0.0036)
ICT Infrastructure				0.0015***	0.0016***				0.0022***	0.0025***
				(0.0001)	(0.0001)				(0.0002)	(0.0002)
Financial development				-0.00001***	0.00003				-0.0023***	-0.0021***
				(0.0001)	(0.0001)				(0.0006)	(0.0006)
Inflation				-0.0007*	-0.0008**				-0.0008	-0.0018*
				(0.0004)	(0.0004)				(0.0007)	(0.0009)
Unemployment				0.00101***	0.0008**				0.0030***	0.0029***
				(0.0004)	(0.0004)				(0.0010)	(0.0010)
First Stage regression										
BITs	8.8941***	13.7681***	4.4273***	12.98***	4.7150***	4.1790***	5.2987***	2.2942***	3.828***	2.2089***
	(2.2164)	(3.7148)	(0.8463)	(4.0645)	(1.0109)	(1.0574)	(1.3943)	(0.4914)	(1.0229)	(0.5353)
Cragg-Donald F-Stats	344.64	259.20	82.25	205.38	83.67	49.17	34.55	18.23	19.53	17.25
Turning Point: FDI [R&D]	-	-	12.02 [0.89]	-	14.71 [0.89]	-	-	6.99 [1.03]	-	10.10 [1.10]
Obs.	2709	1301	1301	1223	1223	1372	699	699	664	664

Note: All variables are as defined earlier. *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parenthesis

Table 6: Impact of FDI on headcount poverty ($1.90, $3.20), IV regression

Variable	Headcount poverty $1.90					Headcount poverty $3.20				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
FDI/GDP	-0.3915***	-0.1225***	-0.3598***	-0.0269**	-0.0590**	-0.7450***	-0.2727***	-0.7870***	-0.0767***	-0.1671***
	(0.1315)	(0.0440)	(0.0936)	(0.0113)	(0.0275)	(0.2466)	(0.0923)	(0.1864)	(0.0252)	(0.0545)
R&D		-2.1320***	-3.6969***	0.3735*	0.1573		-5.4027***	-8.7944***	-0.1058	-0.7155
		(0.2829)	(0.6355)	(0.2216)	(0.2927)		(0.4339)	(1.1145)	(0.3492)	(0.5024)
FDI/GDP × R&D			0.4037***		0.057*			0.8750***		0.1617***
			(0.1059)		(0.0318)			(0.2100)		(0.0628)
ICT Infrastructure				-0.0786***	-0.0801***				-0.1651***	-0.1691***
				(0.0121)	(0.0019)				(0.0159)	(0.0159)
Secondary education				0.0017	0.0017				-0.0022	-0.0021
				(0.0035)	(0.0035)				(0.0040)	(0.0039)
Tertiary education				-0.0982***	-0.0947***				-0.2200***	-0.2103***
				(0.0172)	(0.0172)				(0.0243)	(0.0243)
Financial Development				0.0033	0.0030				0.0041	0.0032
				(0.0041)	(0.0629)				(0.0082)	(0.0087)
Inflation				0.0369	0.0373				0.0722	0.0735
				(0.0630)	(0.0630)				(0.0794)	(0.0798)
Unemployment				0.0646	0.0663				0.1371*	0.1421*
				(0.0474)	(0.0476)				(0.0794)	(0.0750)
First Stage regression										
BITs	11.4574***	12.7215***	4.2233***	12.1992***	4.5207***	11.4574***	12.7215***	4.2233***	12.1992***	4.5207***
	(3.4515)	(3.9833)	(0.9151)	4.2430)	(1.0810)	(3.4515)	(3.9833)	(0.9151)	(4.2430)	(1.0810)
Cragg-Donald F-Stats	176.13	140.34	49.91	113.22	48.85	176.13	140.34	49.91	113.20	48.85
Turning Point: FDI [R&D]	-	-	9.16[0.89]	-	[1.04]	-	-	10.05[0.90]	-	[1.03]
Obs.	1163	859	859	776	776	1163	859	859	776	776

Note: All variables are as defined earlier. *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parenthesis

Table 7: Impact of FDI on headcount poverty ($5.50) and multidimensional poverty, IV regression

Variable	Headcount poverty $5.50					Multidimensional poverty				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
FDI/GDP	-1.1124***	-0.4887***	-1.3613***	-0.1669***	-0.3572***	-0.3034***	-0.2469***	-0.4714***	-0.1974**	-0.2921**
	(0.3625)	(0.1587)	(0.3145)	(0.0507)	(0.1028)	(0.0953)	(0.0782)	(0.1432)	(0.0990)	(0.1327)
R&D		-11.8012***	-17.5559***	-2.7537***	-4.0359***		-7.5602***	-8.2545***	-6.0734***	-6.0509***
		(0.6606)	(1.7520)	(0.5590)	(0.8683)		(0.6682)	(0.8809)	(1.5014)	(1.3886)
FDI/GDP × R&D			1.4846***		0.3403***			0.4449**		0.2483**
			(0.3527)		(0.1182)			(0.1750)		(0.1241)
ICT Infrastructure				-0.2534***	-0.2619***				-0.0418*	-0.0576**
				(0.0171)	(0.0175)				(0.0221)	(0.0229)
Secondary education				-0.0009	-0.0006				-0.0081	-0.0113***
				(0.0039)	(0.0039)				(0.0053)	(0.0037)
Tertiary education				-0.3751***	-0.3547***				-0.0767*	-0.0553
				(0.0039)	(0.0305)				(0.0430)	(0.0358)
Financial Development				-0.0146	-0.0164				0.0596	0.0481
				(0.0150)	(0.0162)				(0.0483)	(0.0358)
Inflation				0.1571	0.1598				0.4770	0.5831*
				(0.1152)	(0.1175)				(0.3556)	(0.3460)
Unemployment				0.3610***	0.3715***				0.4060***	0.4309***
				(0.1004)	(0.1024)				(0.1437)	(0.1363)
First Stage regression										
BITs	11.4574***	12.7215***	4.2233***	12.1992***	4.5207***	6.4018***	6.2766***	2.9662***	3.4458***	2.2922***
	(3.4515)	(3.9833)	(0.9151)	(4.2430)	(1.0810)	(1.5129)	(1.6368)	(0.6397)	(1.3788)	(0.7191)
Cragg-Donald F-Stats	176.13	140.34	49.91	113.22	48.85	27.97	19.36	13.25	8.24	10.13
Turning Point: FDI [R&D]	-	-	11.83[0.92]	-	11.86[1.05]	-	-	8.55[1.06]	-	24.37[1.18]
Obs.	1163	859	859	776	776	405	325	325	314	314

Note: All variables are as defined earlier. *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parenthesis

Table 8: Non-linear impact of FDI on economic growth (GDP p.c.) and inequality (Gini), IV regression

Variable	GDP p.c.			Income inequality (Gini)		
	(1)	(2)	(3)	(4)	(5)	(6)
FDI/GDP	0.2669***	0.0303***	0.0471***	-1.0526***	-0.7734***	-1.2331***
	(0.0470)	(0.0113)	(0.0179)	(0.2672)	(0.2267)	(0.3404)
FDI/GDP ^{2}	-0.0007***	-0.0001**	-0.0003***	0.0028***	0.0020***	0.0063***
	(0.0002)	(0.00003)	(0.0001)	(0.0009)	(0.0007)	(0.0018)
R&D		0.4829***	0.5491***		-3.5599***	-5.8213***
		(0.0494)	(0.0744)		(0.8854)	(1.3517)
FDI/GDP × R&D			-0.0355**			0.9127***
			(0.0140)			(0.2596)
FDI/GDP ^{2} × R&D			0.0004***			-0.0081***
			(0.0001)			(0.0024)
ICT Infrastructure		0.0128***	0.0127***		-0.0083	-0.0142
		(0.0008)	(0.0008)		(0.0133)	(0.0113)
Secondary education		0.00005	0.00002		-0.0019	-0.0014
		(0.0001)	(0.0001)		(0.0026)	(0.0030)
Tertiary education		0.0091***	0.0085***		-0.1577***	-0.1254***
		(0.0015)	(0.0014)		(0.0277)	(0.0208)
Financial development		0.0016	0.0031***		0.0821***	0.0496**
		(0.0014)	(0.0010)		(0.0287)	(0.0199)
Inflation		-0.0186***	-0.0177***		-0.0543	-0.0808
		(0.0067)	(0.0067)		(0.0603)	(0.0615)
Unemployment		-0.0089**	-0.0075**		0.1106	0.0749
		(0.0036)	(0.0035)		(0.0802)	(0.0762)
Turning Point	190.64	151.50	-	187.96	193.35	-
Obs.	2695	1111	1111	1163	776	776
First Stage regression						
BITs	3.1559***	3.1679***	1.8643***	3.6252***	3.4131***	2.0905***
	(0.5127)	(0.8833)	(0.04974)	(0.7931)	(0.9398)	(0.5379)
Cragg-Donald F-Stats	155.92	47.41	54.88	68.72	47.41	46.57
Marginal Effect						
Minimum	-	-	0.0825***	-	-	-1.9392***
			(0.0281)			(0.5303)
Mean	-	-	0.0134***	-	-	-0.1913**
			(0.0050)			(0.0838)
Maximum	-	-	1.5646***	-	-	-27.1511***
			(0.4302)			(8.4945)

Note: All variables are as defined earlier. *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parenthesis

Table 9: Non-linear impact of FDI on welfare, IV regression

Variable	HDI			iHDI		
	(1)	(2)	(3)	(4)	(5)	(6)
FDI/GDP	0.0301***	0.0063***	0.0105***	0.0757***	0.0202***	0.0274***
	(0.0056)	(0.0021)	(0.0034)	(0.0222)	(0.0069)	(0.0073)
FDI/GDP ^{2}	-0.0001***	-0.00002***	-0.0001***	-0.0003***	-0.0001***	-0.0001***
	(0.00002)	(0.000006)	(0.00002)	(0.0001)	(0.00003)	(0.00003)
R&D		0.0638***	0.0807***		0.1168***	0.1449***
		(0.0073)	(0.0120)		(0.0206)	(0.0221)
FDI/GDP × R&D			-0.0079***			-0.0168***
			(0.0025)			(0.0044)
FDI/GDP ^{2} × R&D			0.0001***			0.0001*
			(0.00002)			(0.00003)
ICT Infrastructure		0.0014***	0.0015***		0.0016***	0.0019***
		(0.0001)	(0.0001)		(0.0003)	(0.0002)
Financial development		-0.0004***	-0.0001		-0.0012**	-0.0010**
		(0.0001)	(0.0002)		(0.0006)	(0.0004)
Inflation		-0.0011***	-0.0111**		-0.00005	-0.0009
		(0.0005)	(0.0005)		(0.0008)	(0.0009)
Unemployment		0.0011***	0.0010**		0.0034***	0.0035***
		(0.0004)	(0.0004)		(0.0011)	(0.0010)
Turning Point	150.50	157.50	-	126.17	101.00	-
Obs.	2709	1223	1223	1372	664	664
First Stage regression						
BITs	3.1591***	3.1133***	1.8335***	1.8285***	1.9086***	1.4092***
	(0.5146)	(0.8538)	(0.4902)	(0.4680)	(0.575)	(0.3276)
Cragg-Donald F-Stats	155.39	49.78	57.14	31.41	16.70	29.39
Marginal Effect						
Minimum	-	-	0.0168***	-	-	0.0358***
			(0.0053)			(0.0095)
Mean	-	-	0.0028***	-	-	0.0090***
			(0.0011)			(0.0027)
Maximum	-	-	0.2405***	-	-	0.0539
			(0.0819)			(0.0777)

Note: All variables are as defined earlier. *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parenthesis

Table 10: Non-linear impact of FDI on poverty, IV regression

Variable	Headcount poverty $1.90			Headcount poverty $3.20			Headcount poverty $5.50			Multidimensional poverty		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
FDI/GDP	-1.2986***	-0.0849**	-0.1287*	-2.4594***	-0.2405***	-0.3636***	-3.6354***	-0.5210***	-0.7799***	-0.5999***	-0.2974**	-0.3709**
	(0.3483)	(0.0427)	(0.0674)	(0.6450)	(0.0882)	(0.1365)	(0.9311)	(0.1598)	(0.2427)	(0.1997)	(0.1440)	(0.1551)
FDI/GDP ^{2}	0.0035***	0.0002*	0.0006*	0.0067***	0.0006**	0.0019***	0.0098***	0.0012***	0.0041***	0.0026***	0.0012**	0.0014**
	(0.0011)	(0.0001)	(0.0003)	(0.0021)	(0.0002)	(0.0007)	(0.0030)	(0.0005)	(0.0013)	(0.0010)	(0.0006)	(0.0006)
R&D		0.2563	0.0436		-0.4372	-1.0252*		-3.4686***	-4.6765***		-5.1693***	-5.2187***
		(0.2546)	(0.3466)		(0.4300)	(0.6220)		(0.7266)	(1.0579)		(1.0817***	(1.0380)
											(1.0817)	
FDI/GDP × R&D			0.0878*			0.2498**			0.5352***			0.2199***
			(0.0514)			(0.1052)			(0.1893)			(0.0940)
FDI/GDP ^{2} × R&D			-0.0008*			-0.0024**			-0.0055***			-0.00087
			(0.0005)			(0.0010)			(0.0017)			(0.0007)
ICT Infrastructure		-0.0773***	-0.0779***		-0.1612***	-0.1625***		-0.2450***	-0.2471***		-0.0294	-0.0427**
		(0.0123)	(0.0122)		(0.0162)	(0.0160)		(0.0183)	(0.0176)		(0.0230)	(0.0210)
Secondary education		0.0019	0.0019		-0.0017	-0.0016		0.0002	0.0005		-0.0067	-0.0092**
		(0.0035)	(0.0035)		(0.0040)	(0.0040)		(0.0039)	(0.0040)		(0.0062)	(0.0042)
Tertiary education		-0.0999***	-0.0969***		-0.2249***	-0.2165***		-0.3857***	-0.3685***		-0.0574	-0.0435
		(0.0174)	(0.0173)		(0.0251)	(0.0243)		(0.0328)	(0.0302)		(0.0365)	(0.0315)
Financial development		0.0071	0.0038		0.0146	0.0050		0.0082	-0.0137		0.0097	0.0045
		(0.0058)	(0.0045)		(0.0120)	(0.0089)		(0.0218)	(0.0155)		(0.0239)	(0.0120)
Inflation		0.0436	0.0409		0.0911	0.0829		0.1979	0.1786		0.4656	0.5461
		(0.0624)	(0.0627)		(0.0803)	(0.0803)		(0.1216)	(0.1213)		(0.3458)	(0.3353)
Unemployment		0.0652	0.0615		0.1389*	0.1277*		0.3650***	0.3383***		0.4366***	0.4464***
		(0.0474)	(0.0477)		(0.0749)	(0.0750)		(0.1040)	(0.1031)		(0.1343)	(0.1299)
Turning Point	185.51	212.25	-	183.54	200.42	-	185.48	217.08	-	115.37	247.83	-
Obs.	1163	776	776	1163	776	776	1163	776	776	405	314	314
First Stage regression												
BITs	3.6252***	3.4131***	2.0905***	3.6252***	3.4131***	2.0905***	3.6252***	3.4131***	2.0905***	3.2550***	2.3401***	1.8694***
	(0.7931)	(0.9398)	(0.5379)	(0.7931)	(0.9398)	(0.5379)	(0.7931)	(0.9398)	(0.5379)	(0.7863)	(0.9006)	(0.4777)
Cragg-Donald F-Stats	68.72	36.47	46.57	68.72	36.47	46.57	68.72	36.47	46.57	31.34	12.36	36.34
Marginal Effect												
Minimum	-	-	-0.2001*	-	-	-0.5722***	-	-	-1.2462***	-	-	-0.4813**
			(0.1051)			(0.2126			(0.3786)			(0.1926)
Mean	-	-	-0.0286**	-	-	-0.0801***	-	-	-0.1763***	-	-	-0.0670**
			(0.0129)			(0.0291)			(0.0548)			(0.0334)
Maximum	-	-	-2.7290*	-	-	-8.1854**	-	-	-18.7994***	-	-	-0.5557
			(1.5494)			(3.2749)			(6.0729)			(1.1485)

Note: All variables are as defined earlier. *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parenthesis

Table 11: Impact of FDI on growth, inequality (Gini) and welfare (HDI and iHDI), GMM results

Variable	GDP p.c.		Income inequality (Gini)		HDI		iHDI	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
L1.Depndent variable	0.8769***	0.949***	0.9459***	0.9253***	0.9180***	0.9122***	0.9620**	0.9585***
	(0.0403)	(0.0263)	(0.0340)	(0.0198)	(0.0206)	(0.0246)	(0.0101)	(0.0123)
FDI/GDP	0.0004*	0.0026***	-0.0030*	-0.0136***	0.00004***	0.0001***	0.0001**	0.0005***
	(0.0002)	(0.0008)	(0.002)	(0.0038)	(0.00001)	(0.00002)	(0.00002)	(0.0001)
R&D	0.1168**	0.0417*	-0.0294	-0.0577	0.0086***	0.0083***	0.0056***	0.0084***
	(0.0463)	(0.0224)	(0.231)	(0.0757)	(0.0022)	(0.0023)	(0.0022)	(0.0032)
FDI/GDP × R&D		-0.0043***		0.0178***		-0.0001***		-0.0004**
		(0.0015)		(0.0078)		(0.00002)		(0.0002)
ICT Infrastructure	0.0021***	0.0011**	-0.0053***	-0.0047***	0.0001***	0.0001***	0.0001***	0.0001***
	(0.0007)	(0.0004)	(0.0018)	(0.0017)	(0.0022)	(0.00002)	(0.00002)	(0.00002)
Secondary education	-0.00002	-0.0001	-0.0042***	-0.0027***				
	(0.00008)	(0.0001)	(0.0011)	(0.0007)				
Tertiary education	0.0018**	0.0006	-0.0092	-0.0134***				
	(0.0008)	(0.0001)	(0.0086)	(0.0051)				
Financial development	-0.0011***	-0.0005**	0.0065***	0.0038***	-0.00003**	-0.00002	-0.00004**	-0.0001**
	(0.0003)	(0.0002)	(0.0023)	(0.0011)	(0.00001)	(0.00002)	(0.00002)	(0.00003)
Inflation	-0.0012	-0.0015	-0.0032	-0.0138*	-0.0001	-0.0002	0.0005*	0.0004
	(0.0011)	(0.0010)	(0.0170)	(0.0080)	(0.0002)	(0.0003)	(0.0003)	(0.0003)
Unemployment	0.0025**	-0.0027***	0.0134	0.0188	0.0001**	0.0001**	0.0001	0.0001
	(0.0011)	(0.0009)	(0.0170)	(0.0139)	(0.0001)	(0.00001)	(0.0001)	(0.0001)
No. of countries	128	128	64	64	130	130	102	102
No. of instruments	40	39	45	45	14	14	22	22
AR(2)	0.883	0.837	0.131	0.115	0.436	0.414	0.550	0.350
Hansen p-value	0.122	0.139	0.740	0.881	0.734	0.330	0.111	0.185
Obs.	1061	1061	647	647	1148	1148	574	574
Turning Point: FDI [R&D]	-	9.63[0.60]	-	[0.76]	-	83[1.00]	-	21[1.25]

Note: All variables are as defined earlier. *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parenthesis

Table 12: Impact of FDI on headcount poverty ($1.90, $3.20 and $5.50) and multidimensional poverty, GMM results

Variable	Headcount poverty $1.90		Headcount poverty $3.20		Headcount poverty $5.50		Multidimensional poverty	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
L1.Dependent variable	0.7780***	0.7976***	0.8180***	0.8398***	0.8700***	0.8811***	0.7152***	0.8692***
	(0.0086)	(0.0130)	(0.0082)	(0.0146)	(0.0122)	(0.0125)	(0.0448)	(0.0256)
FDI/GDP	-0.0016**	-0.0029**	-0.0026***	-0.0086**	-0.0104***	-0.0169**	-0.0079*	-0.0494***
	(0.0006)	(0.0014)	(0.0005)	(0.0039)	(0.0029)	(0.0072)	(0.0045)	(0.0146)
R&D	-0.1286**	-0.0302*	-0.1766***	-0.1231**	-0.3996**	-0.3324***	-0.8737*	-0.0977
	(0.0644)	(0.0128)	(0.0465)	(0.0462)	(0.2026)	(0.1226)	(0.5086)	(0.1868)
FDI/GDP × R&D		0.0044**		0.0122***		0.0225**		0.0544***
		(0.0019)		(0.0045)		(0.0088)		(0.0171)
ICT Infrastructure	-0.0029***	-0.0013*	-0.0024**	-0.0040**	-0.0118***	-0.0087**	-0.0479***	0.0007
	(0.0006)	(0.0019)	(0.0012)	(0.0019)	(0.0020)	(0.0045)	(0.0095)	(0.0070)
Secondary education	-0.00071***	-0.0005***	-0.0016***	-0.0014***	-0.0016***	-0.0019***	0.0031	-0.0011***
	(0.0001)	(0.0001)	(0.0004)	(0.0002)	(0.0006)	(0.0006)	(0.0095)	(0.0004)
Tertiary education	-0.0054***	-0.0034**	-0.0068**	0.0093***	-0.0294***	-0.0167**	-0.0566***	-0.0758***
	(0.0015)	(0.0013)	(0.0030)	(0.0032)	(0.0076)	(0.0067)	(0.0159)	(0.0163)
Financial development	0.0020*	-0.0002	-0.0007	-0.0005	0.0012	-0.0016	0.0082	0.0168***
	(0.0012)	(0.0002)	(0.0008)	(0.0006)	(0.0026)	(0.0014)	(0.0075)	(0.0054)
Inflation	-0.0139***	-0.0075	-0.0203***	-0.0091	-0.0217**	-0.0153*	-0.0368	-0.0921**
	(0.0051)	(0.0048)	(0.0041)	(0.0094)	(0.0089)	(0.0087)	(0.0844)	(0.0441)
Unemployment	0.0113***	0.0114***	0.0144***	0.0207***	0.0522***	0.0485***	0.1116***	0.0418**
	(0.0037)	(0.0027)	(0.0052)	(0.0070)	(0.0130)	(0.0150)	(0.0351)	(0.0194)
No. of countries	64	64	64	64	64	64	36	36
No. of instruments	60	60	61	61	61	61	31	31
AR(2)	0.326	0.291	0.867	0.876	0.467	0.483	0.183	0.325
Hansen P-Value	0.161	0.521	0.387	0.189	0.499	0.424	0.704	0.677
Obs.	647	647	647	647	647	647	262	262
Turning Point: FDI [R&D]	-	7.27[0.66]	-	10.09[0.70]	-	14.77[0.75]	-	[0.91]

Note: All variables are as defined earlier. *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parenthesis

Table 13: Impact of FDI on growth, inequality and welfare (lag of independent variables), IV regression

Variable	GDP p.c.		Inequality (GINI)		HDI		iHDI	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FDI/GDP (t-1)	0.0079***	0.0186***	-0.1794***	-0.5169***	0.0014***	0.0040***	0.0079***	0.0150***
	(0.0026)	(0.0061)	(0.0561)	(0.1175)	(0.0005)	(0.0009)	(0.0020)	(0.0030)
R&D (t-1)	0.4266***	0.4940***	-2.2329***	-4.5367***	0.0521***	0.0660***	0.1192***	0.1469***
	(0.0336)	(0.0491)	(0.5184)	(0.9397)	(0.0036)	(0.0061)	(0.0148)	(0.0185)
FDI/GDP (t-1) × R&D (t-1)		-0.0192**		0.5982***		-0.0045***		-0.0143***
		(0.0078)		(0.1466)		(0.0010)		(0.0034)
ICT Infrastructure (t-1)	0.0123***	0.0127***	-0.0275***	-0.0421***	0.0015***	0.0026***	0.0021***	0.0024***
	(0.0007)	(0.0007)	(0.0092)	(0.0118)	(0.0001)	(0.0001)	(0.0002)	(0.0002)
Secondary education (t-1)	0.0001	0.0001	-0.0038**	-0.0032*				
	(0.0001)	(0.0001)	(0.0016)	(0.0018)				
Tertiary education (t-1)	0.0091***	0.0083***	-0.1389***	-0.1053***				
	(0.0014)	(0.0015)	(0.0157)	(0.0214)				
Financial development (t-1)	0.0030***	0.0032***	0.0408***	0.0383**	-0.00001	0.00002	-0.0019***	-0.0018***
	(0.0008)	(0.0008)	(0.0145)	(0.0187)	(0.0001)	(0.0001)	(0.0005)	(0.0005)
Inflation (t-1)	-0.0225***	-0.0226***	-0.1277***	-0.1297**	-0.0007*	-0.0008**	-0.0009	-0.0019***
	(0.0057)	(0.0058)	(0.0453)	(0.0524)	(0.0004)	(0.0004)	(0.0006)	(0.0009)
Unemployment (t-1)	-0.0094***	-0.0099***	0.1171*	0.1391**	0.0011***	0.0008**	0.0028***	0.0025***
	(0.0034)	(0.0035)	(0.0646)	(0.0711)	(0.0004)	(0.0004)	(0.0009)	(0.0010)
Turning Point: FDI [R&D]	-	25.73 [0.97]	-	7.58 [0.86]	-	14.67 [0.89]	-	10.27 [1.05]
Obs.	1110	1110	767	767	1222	1222	741	741
First Stage regression								
BITs	13.3351***	4.5954***	14.5167***	4.8440***	12.9803***	4.7055***	4.6941***	2.4561***
	(4.1640)	(1.0016)	(4.5390)	(1.1232)	(4.0646)	(1.0098)	(1.1284)	(0.5237)
Cragg-Donald F-Stats	195.62	75.54	146.42	52.55	205.21	83.37	29.35	21.09

Note: All variables are as defined earlier. *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parenthesis

Table 14: Impact of FDI on poverty (lag of independent variables), IV regression

Variable	Headcount poverty $1.90		Headcount poverty $3.20		Headcount poverty $5.50		Multidimensional poverty	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FDI/GDP (t-1)	-0.0306***	-0.0753***	-0.0825***	-0.2045***	-0.1685***	-0.4024***	-0.2183*	-0.3357**
	(0.0106)	(0.0293)	(0.0237)	(0.0583)	(0.0454)	(0.1067)	(0.1140)	(0.1578)
R&D (t-1)	0.4293*	0.1247	-0.1567	-0.9894*	-2.7794***	-4.3766***	-6.2652***	-6.2212***
	(0.2373)	(0.3210)	(0.3653)	(0.5519)	(0.5580)	(0.9271)	(1.7929)	(1.6301)
FDI/GDP (t-1) × R&D (t-1)		0.0791**		0.2162***		0.4147***		0.3126*
		(0.0367)		(0.0738)		(0.1353)		(0.1603)
ICT Infrastructure (t-1)	-0.0863***	-0.0883***	-0.1594***	-0.1647***	-0.2403***	-0.2504***	-0.0262	-0.0412*
	(0.0137)	(0.0136)	(0.0169)	(0.0171)	(0.0176)	(0.0184)	(0.0215)	(0.0214)
Secondary education (t-1)	0.0008	0.0009	-0.0004	-0.0001	0.0046	0.0050	-0.0180**	-0.0199***
	(0.0033)	(0.0033)	(0.0039)	(0.0038)	(0.0038)	(0.0038)	(0.0071)	(0.0061)
Tertiary education (t-1)	-0.1140***	-0.1096***	-0.2304***	-0.2183***	-0.3827***	-0.3594***	-0.1025***	-0.0765**
	(0.0183)	(0.0184)	(0.0249)	(0.0253)	(0.0301)	(0.0314)	(0.0394)	(0.0309)
Financial development (t-1)	0.0036	-0.0114	0.0045	0.0036	-0.0128	-0.0145	0.0791	0.0635
	(0.0042)	(0.0678)	(0.0081)	(0.0092)	(0.0144)	(0.0164)	(0.0557)	(0.0424)
Inflation (t-1)	-0.0112	0.0679	-0.0100	-0.0107	0.0487	0.0473	0.7138**	0.8441***
	(0.0679)	(0.0520)	(0.0847)	(0.0849)	(0.1013)	(0.1032)	(0.2969)	(0.2685)
Unemployment (t-1)	0.0650	0.0679	0.1622**	0.1701**	0.3863***	0.4015***	0.4066***	0.4381***
	(0.0518)	(0.0520)	(0.0755)	(0.0763)	(0.0946)	(0.0969)	(0.1343)	(0.1228)
Turning Point: FDI [R&D]	-	[0.95]	-	4.57[0.95]	-	10.55[0.97]	-	19.90[1.07]
Obs.	767	767	767	767	767	767	349	349
First Stage regression								
BITs	14.5167***	4.8440***	14.5167***	4.8440***	14.5167***	4.8440***	3.2797**	2.1185***
	(4.5390)	(1.1232)	(4.5390)	(1.1232)	(4.5390)	(1.1232)	(1.3541)	(0.6930)
Cragg-Donald F-Stats	146.42	52.55	146.42	52.55	146.42	52.55	7.30	8.24

Note: All variables are as defined earlier. *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parenthesis

Table 15: Impact of FDI on growth and development (developing and developed countries), IV regression

Variable	GDP p.c.	Gini	HDI	iHDI	Headcount poverty $1.90	Headcount poverty $3.20	Headcount poverty $5.50	Multidimensional poverty
FDI/GDP × Developing	0.0278	-0.8691***	0.0107***	0.0172***	-0.8695***	-1.1034***	0.4508	-0.3388
	(0.029)	(0.306)	(0.003)	(0.006)	(0.277)	(0.395)	(0.400)	(0.714)
FDI/GDP × Developed	0.0039	-0.2031***	0.0014***	0.0090***	-0.0384**	-0.0846***	-0.1435***	-0.1453
	(0.003)	(0.072)	(0.001)	(0.003)	(0.015)	(0.029)	(0.045)	(0.102)
R&D × Developing	0.0165	-0.2348	0.0201***	0.0843***	-0.6618	-0.4907	0.2253	2.7677
	(0.036)	(0.884)	(0.007)	(0.021)	(0.711)	(0.964)	(1.053)	(7.268)
R&D × Developed	0.4916***	-3.0430***	0.0738***	0.1413***	-0.4421*	-1.0938**	-2.1394***	-5.3944***
	(0.072)	(0.627)	(0.008)	(0.022)	(0.253)	(0.444)	(0.621)	(1.574)
ICT Infrastructure	0.0124***	-0.0219**	0.0013***	0.0019***	-0.0858***	-0.1723***	-0.2443***	-0.0273
	(0.001)	(0.011)	(0.000)	(0.000)	(0.014)	(0.017)	(0.019)	(0.030)
Secondary education	0.0001	-0.0013	-		0.0057	0.0025	-0.0044	-0.0082
	(0.000)	(0.003)	-		(0.004)	(0.005)	(0.005)	(0.005)
Tertiary education	0.0087***	-0.1458***	-		-0.1089***	-0.2320***	-0.3646***	-0.0440
	(0.002)	(0.020)	-		(0.021)	(0.028)	(0.031)	(0.045)
Financial Development	0.0043***	0.0351**	-0.0001	-0.0020***	-0.0024	-0.0048	-0.0153	0.0381
	(0.001)	(0.018)	(0.000)	(0.001)	(0.005)	(0.009)	(0.013)	(0.047)
Inflation	-0.0130*	-0.0766	-0.0011*	-0.0004	0.1547*	0.2014*	0.0341	0.2086
	(0.007)	(0.068)	(0.001)	(0.001)	(0.093)	(0.114)	(0.131)	(0.297)
Unemployment	-0.0083**	0.1146	0.0014***	0.0033***	0.0700	0.1455*	0.3614***	0.3884***
	(0.003)	(0.070)	(0.000)	(0.001)	(0.051)	(0.079)	(0.098)	(0.140)
	(0.104)	(2.114)	(0.014)	(0.028)	(3.064)	(3.861)	(3.824)	(5.798)
Obs.	1111	776	1,223	664	776	776	776	314
First Stage regression	**Dependent Variable: FDI × Developing**							
BITs x Developing	3.0070***	4.1349***	3.5893***	3.8713***	4.1349***	4.1349***	4.1349***	4.2264***
	(0.6846)	(0.9183)	(0.6779)	(1.0996)	(0.9183)	(0.9183)	(0.9183)	(0.7309)
BITs x Developed	-0.9939***	-0.3566***	-0.9387***	0-.6909***	-0.3566***	-0.3566***	-0.3566***	-0.2548***
	(0.1679)	(0.0594)	(0.1708)	(0.1700)	(0.0594)	(0.0594)	(0.0594)	(0.0509)
	Dependent Variable: FDI × Developed							
BITs x Developed	15.6017***	12.9318***	15.2742***	4.4722***	12.9318***	12.9318***	12.9318***	3.6341**
	(4.6349)	(4.5129)	(4.5214)	(1.1099)	(4.5129)	(4.5129)	(4.5129)	(1.4341)
BITs x Developing	0.2941	0 .7459	0.0577	-1.0986	0 .7459	0 .7459	0 .7459	-0.9204
	(1.1916)	(1.6001)	(1.1391)	(1.0340)	(1.6001)	(1.6001)	(1.6001)	2.8127
Cragg-Donald F-Stats	16.50	31.95	25.10	7.70	31.95	31.950	31.950	3.76

Note: All variables are as defined earlier. *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parenthesis

Table 16: Impact of FDI on growth and development with three-way interaction terms (developing and developed countries), IV regression

Variable	GDP p.c.	Gini	HDI	iHDI	Headcount poverty $1.90	Headcount poverty $3.20	Headcount poverty $5.50	Multidimensional poverty
FDI/GDP × Developing	0.0617	-2.9330**	0.0218***	0.0179***	-2.3294*	-2.6880*	2.4139	0.7515
	(0.051)	(1.492)	(0.008)	(0.007)	(1.256)	(1.596)	(1.723)	(1.235)
FDI/GDP × Developed	0.0031	-0.5618***	0.0045***	0.0139***	-0.1257*	-0.2251**	-0.2315**	-0.1365
	(0.005)	(0.148)	(0.001)	(0.003)	(0.066)	(0.095)	(0.103)	(0.141)
R&D × Developing	0.1943	-13.6511*	0.0815***	0.0900***	-10.0715	-10.7259	12.7789	11.9104
	(0.123)	(7.611)	(0.025)	(0.020)	(6.646)	(8.180)	(8.985)	(7.398)
R&D × Developed	0.4628***	-5.8170***	0.0961***	0.1490***	-1.3732*	-2.3873**	-2.1619*	-4.4820***
	(0.073)	(1.330)	(0.017)	(0.020)	(0.775)	(1.103)	(1.245)	(1.449)
FDI/GDP × R&D × Developing	-0.0982	8.2275*	-0.0172**	-0.0161	5.7654	6.2726	-7.6853	-3.2119
	(0.063)	(4.579)	(0.007)	(0.010)	(3.865)	(4.787)	(5.374)	(2.318)
FDI/GDP × R&D × Developed	-0.0007	0.6141***	-0.0050***	-0.0127***	0.1263*	0.2216**	0.2109*	0.1213
	(0.007)	(0.161)	(0.002)	(0.003)	(0.073)	(0.106)	(0.116)	(0.120)
ICT Infrastructure	0.0136***	-0.0333**	0.0015***	0.0023***	-0.0880***	-0.1763***	-0.2487***	-0.0290
	(0.001)	(0.015)	(0.000)	(0.000)	(0.015)	(0.020)	(0.018)	(0.027)
Secondary education	-0.0001	-0.0013	-	-	0.0061	0.0028	-0.0054	-0.0119**
	(0.000)	(0.004)	-	-	(0.005)	(0.005)	(0.005)	(0.005)
Tertiary education	0.0081***	-0.1156***	-	-	-0.1084***	-0.2257***	-0.3396***	0.0002
	(0.001)	(0.030)	-	-	(0.025)	(0.033)	(0.034)	(0.042)
Financial Development	0.0056***	0.0285	-0.0001	-0.0016***	-0.0050	-0.0082	-0.0143	0.0086
	(0.001)	(0.023)	(0.000)	(0.000)	(0.007)	(0.011)	(0.012)	(0.037)
Inflation	-0.0123*	-0.2286***	-0.0019**	-0.0007	0.0650	0.0991	0.1327	0.0875
	(0.007)	(0.085)	(0.001)	(0.001)	(0.087)	(0.102)	(0.129)	(0.327)
Unemployment	-0.0094***	0.0338	0.0008*	0.0027***	-0.0003	0.0728	0.4722***	0.4114***
	(0.003)	(0.086)	(0.000)	(0.001)	(0.067)	(0.093)	(0.117)	(0.136)
	(0.164)	(4.103)	(0.025)	(0.027)	(4.472)	(5.574)	(5.529)	(5.447)
Obs.	1111	776	1223	664	776	776	776	314
Turning Point: FDI [R&D] -Developing	-	1.66[0.37]	4.74[1.27]	-	-	-	-	-
Turning Point: FDI [R&D] -Developed	-	9.47[0.91]	19.22[0.90]	11.73[1.41]	10.87[1.78]	10.77[1.02]	10.25[1.10]	-
First Stage regression	**Dependent Variable: FDI × Developing**							
BITs x Developing	1.7895***	1.2849**	1.7139***	2.7487***	1.2849**	1.2849**	1.2849**	1.9454***
	(0.4551)	(0.5955)	(0.5230)	(0.8494)	(0.5955)	(0.5955)	(0.5955)	(0.3021)
BITs x Developed	-0.3560***	-0.2221***	-0.6141***	-0.3901***	-0.2221***	-0.2221***	-0.2221***	-0.2023***
	(0.0927)	(0.0474)	(0..0859)	(0.1171)	(0.0474)	(0.0474)	(0.0474)	(0.0347)
	Dependent Variable: FDI × Developed							
BITs x Developed	5.5412***	5.0816***	5.4933***	2.5003***	5.0816***	5.0816***	5.0816***	2.4594***
	(1.1824)	(1.2827)	(1.1465)	(.5494)	(1.2827)	(1.2827)	(1.2827)	(0.7520)
BITs x Developing	0.1623	0.5270	0.3119	0.6843	0.5270	0.5270	0.5270	3.0561
	(0.5668)	(0.9493)	(0.5618)	(0.6536)	(0.9493)	(0.9493)	(0.9493)	(1.8426)
Cragg-Donald F-Stats	14.92	8.87	10.87	9.03	8.87	8.87	8.87	5.42

Note: All variables are as defined earlier. *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parenthesis

Table 17: Impact of FDI on growth and development (excluding top and bottom deciles of FDI and R&D), IV regression

Variable	GDP p.c.	Gini	HDI	iHDI	Headcount poverty $1.90	Headcount poverty $3.20	Headcount poverty $5.50	Multidimensional poverty
FDI/GDP	0.1882**	-6.1750***	0.0451***	0.3324	-2.9383***	-5.9192***	-8.2880***	14.9509
	(0.074)	(1.971)	(0.011)	(0.310)	(0.817)	(1.529)	(2.306)	(42.822)
R&D	1.2621***	-16.2257***	0.1450***	0.8849	-9.9542***	-20.5205***	-33.0556***	24.2372
	(0.271)	(5.621)	(0.036)	(0.813)	(3.167)	(5.399)	(7.364)	(74.042)
FDI/GDP × R&D	-0.1582**	2.1985*	-0.0174**	-0.1590	2.4160***	4.5972***	6.1216***	-7.6293
	(0.065)	(1.216)	(0.009)	(0.168)	(0.758)	(1.254)	(1.664)	(18.570)
ICT Infrastructure	0.0140***	-0.0090	0.0016***	-0.0019	-0.0723***	-0.1579***	-0.2411***	-0.2390
	(0.001)	(0.025)	(0.000)	(0.004)	(0.016)	(0.025)	(0.033)	(0.585)
Secondary education	-0.0003*	-0.0004	-	-	0.0004	-0.0004	0.0079	-0.0139
	(0.000)	(0.004)	-	-	(0.004)	(0.005)	(0.006)	(0.014)
Tertiary education	0.0050***	-0.1266***	-	-	-0.1074***	-0.2374***	-0.3960***	-0.0575
	(0.002)	(0.038)	-	-	(0.026)	(0.040)	(0.052)	(0.275)
Financial development	0.0042***	0.0668***	0.0000	-0.0007	0.0047	0.0065	-0.0079	-0.0007
	(0.001)	(0.019)	(0.000)	(0.001)	(0.009)	(0.016)	(0.023)	(0.215)
Inflation	-0.0119*	0.0143	-0.0008	0.0028	0.0362	0.0930	0.1659	-0.5554
	(0.007)	(0.125)	(0.001)	(0.006)	(0.074)	(0.123)	(0.197)	(4.179)
Unemployment	-0.0051	0.0927	0.0009	0.0068	0.1003*	0.2155*	0.4864***	0.6444
	(0.004)	(0.122)	(0.001)	(0.008)	(0.059)	(0.113)	(0.166)	(0.559)
	(0.320)	(8.337)	(0.051)	(0.796)	(4.957)	(7.502)	(9.860)	(64.448)
Turning Point: FDI [R&D]	7.98 [1.19]	7.38 [2.81]	8.33 [2.59]	-	4.12 [1.22]	4.46 [1.29]	5.40 [1.35]	-
Obs.	725	512	775	436	512	512	512	196
First Stage regression								
BITs	0.8533**	0.7481*	0.9482***	-0.0028	0.7481*	0.7481*	0.7481*	-0.2411
	(0.360)	(0.406)	(0.364)	(0.322)	(0.406)	(0.406)	(0.406)	(0.336)
Cragg-Donald F-Stats	10.38	8.46	12.84	0.48	8.45	8.46	8.46	0.06

Note: All variables are as defined earlier. *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parenthesis

Table 18: Non-linear impact of FDI on growth and development (excluding top and bottom deciles of FDI and R&D), IV regression

Variable	GDP p.c.	Gini	HDI	iHDI	Headcount poverty $1.90	Headcount poverty $3.20	Headcount poverty $5.50	Multidimensional poverty
FDI/GDP	0.2558	-19.7259***	0.1005***	0.1853***	-2.3843	-6.6204**	-12.3261**	-0.4500
	(0.211)	(6.925)	(0.037)	(0.066)	(1.467)	(3.204)	(5.779)	(2.662)
FDI/GDP ^{2}	-0.0221	1.6806***	-0.0084***	-0.0156***	0.1847	0.5403**	1.0533**	0.0113
	(0.018)	(0.597)	(0.003)	(0.006)	(0.125)	(0.273)	(0.496)	(0.247)
R&D	0.6147***	-6.343***	0.0488***	0.0954***	-0.1974	-1.8292**	-7.9450***	-5.5497***
	(0.050)	(1.671)	(0.008)	(0.019)	(0.443)	(0.865)	(1.418)	(1.240)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Turning Point: FDI	-	5.87	5.98	5.94	-	6.13	5.85	-
Obs.	725	512	725	400	512	512	512	196
First Stage regression								
BITs	0.1567***	0.1589***	0.1567***	0.1750***	0.1589***	0.1589***	0.1589***	0.1497**
	(0.053)	(0.057)	(0.053)	(0.065)	(0.057)	(0.057)	(0.057)	(0.066)
Cragg-Donald F-Stats	10.23	9.28	10.23	9.25	9.28	9.28	9.29	6.01

Note: All variables are as defined earlier. *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parenthesis

Appendix

This appendix provides the list of countries used in the study.

Table A1: List of countries

Albania	Ghana	North Macedonia
Algeria	Greece	Norway
Angola	Guatemala	Oman
Armenia	Honduras	Pakistan
Australia	Hong Kong SAR, C	Panama
Austria	Hungary	Papua New Guinea
Azerbaijan	Iceland	Paraguay
Bahrain	India	Peru
Belarus	Indonesia	Philippines
Belgium	Iran, Islamic Re	Poland
Bolivia	Iraq	Portugal
Bosnia and Herze	Ireland	Qatar
Botswana	Israel	Russian Federati
Brazil	Italy	Rwanda
Brunei Darussala	Japan	Saudi Arabia
Bulgaria	Jordan	Senegal
Burkina Faso	Kazakhstan	Serbia
Burundi	Kenya	Singapore
Cabo Verde	Korea, Rep.	Slovak Republic
Cambodia	Kuwait	Slovenia
Canada	Kyrgyz Republic	South Africa
Chad	Latvia	Spain
Chile	Lesotho	Sri Lanka
China	Lithuania	Sudan
Colombia	Luxembourg	Sweden
Congo, Dem. Rep.	Madagascar	Switzerland
Costa Rica	Malaysia	Tajikistan
Cote d'Ivoire	Mali	Tanzania
Croatia	Malta	Thailand
Cyprus	Mauritania	Togo
Czech Republic	Mauritius	Trinidad and Tob
Denmark	Mexico	Tunisia
Ecuador	Moldova	Turkey
Egypt, Arab Rep.	Mongolia	Uganda
El Salvador	Montenegro	Ukraine
Estonia	Morocco	United Arab Emir
Eswatini	Mozambique	United Kingdom
Ethiopia	Myanmar	United States
Finland	Namibia	Uruguay
France	Nepal	Venezuela, RB
Gabon	Netherlands	Vietnam
Gambia, The	New Zealand	Zambia
Georgia	Nicaragua	
Germany	Nigeria	